



CAMPBELL INSTITUTE™

Defining world class EHS

An analysis of leading EHS
management system practices
of Robert W. Campbell Award winners

Executive summary

The Robert W. Campbell Award®, the most prestigious award in Environmental, Health and Safety (EHS) worldwide, recognizes organizations that achieve business excellence through the integration of EHS management in business operations. Winners of the Award demonstrate that a well-integrated EHS Management System (EHSMS) leads to success, not only in EHS practices, but in business practices as well. In order to be selected for the Award, an organization must show consistent improvement or sustained leading performance in EHS for a minimum of five years using performance measurements that are recognized throughout industry. In addition, an organization must demonstrate a minimum of five years of sustained sound financial management. There have been 10 Campbell Award winners to date, with the most recent Award winner being UTC Fire & Security, selected in 2011.

The Campbell Institute (Institute) is the EHS Center of Excellence at the National Safety Council (NSC). A natural progression of the Robert W. Campbell Award, the Institute is built on the belief that EHS is at the core of business vitality and intrinsic to operational excellence and financial performance. The Institute helps organizations of all sizes and sectors achieve and sustain excellence.

In the fall of 2012, members of the Campbell Institute Research & Knowledge subcommittee conducted a comparative analysis of the 10 Campbell Award-winning applications in order to determine best practices of leading organizations in EHS. The comparisons made are based on the structure of the original award criteria, including sections on leadership, integrated EHS management system, performance measurement, the linkage between EHS and business performance, and other factors, with a focus on corporate citizenship and off-the-job initiatives.

At a high level, Campbell Award-winning organizations:

- ▶ Excellence in EHS hinges upon the ability of individuals throughout an organization – from the CEO to frontline employees – to contribute to building and sustaining an organizational culture that places EHS on par with business performance.
- ▶ Organizations that have successfully utilized a systems-based approach to EHS management have done so by adopting and adapting existing industry standards and international guidelines to ensure that EHS is seamlessly integrated across all business functions, structures, and geographies, including consideration of contractors. World-class EHS organizations also integrate their systems across EHS, and in many cases, quality, security and sustainability.
- ▶ Organizations with world-class EHS records rely on a combination of leading and lagging indicators to promote and monitor continuous improvement activities of EHS management systems.
- ▶ Regardless of the complexities and uncertainty of running a successful business, EHS remains firmly aligned with other organizational objectives, strategies, and values.
- ▶ In addition to striving for EHS excellence on the job, world-class organizations extend their efforts to promote the health and safety of their employees off-site, as well as investing resources in the surrounding communities and environment. Off-the-job initiatives and corporate citizenship are supported through the sponsorship of programs and events, volunteering, community outreach, and improving global issues.



Any organization can implement an EHSMS based on a variety of voluntary standards such as ISO 14001 or OSHAS 18001. However, these results indicate that not only are Campbell Award-winning organizations able to implement a successful EHSMS, but the EHSMS is implemented in a manner that specifically focuses on leadership, risk and impact reduction, and performance measurement. The Campbell Award winning organizations also design their EHSMS in a manner that is unique and tailored to their organization, with a goal of continuous improvement. Ultimately, the EHSMS of a Campbell Award winner makes a meaningful difference in the way their business performs, the lives of their employees, the communities that surround them and the environment. From these findings, other organizations can evaluate their own EHS management strategies and compare them against those that are considered “best in class.”

About the **Campbell Institute**

The Institute is the EHS Center of Excellence at the National Safety Council (NSC). Built on the belief that EHS is at the core of business vitality and intrinsic to operational excellence and financial performance, the Institute helps organizations of all sizes and sectors achieve and sustain excellence.

A shared space for organizations to reach across industries to form deep, collaborative bonds, engage in open discussion on best practices as well as vexing concerns, and connect to thought leaders in many industry sectors – the Institute is the only place of its kind, anywhere in the world. Its true power lies in the sharing of proven knowledge, actionable solutions and lessons learned from leading-edge organizations around the globe.

The Institute not only provides a platform for the creation of EHS resources, but seeks to put this critical, timely information in the hands of those who need it most. That is why each member of the Institute is *Individually Strong*, but, joined together, *Collectively Stronger*. Through partnership, events, research and knowledge, the Institute is a driving force in EHS and thought leadership.

thecampbellinstitute.org



About the **Campbell Award**

Established in 2004 and supported by a network of 22 Global Partners across five continents, the international Robert W. Campbell Award (Campbell Award) recognizes organizations that achieve excellence through the integration of EHS management in business operations. The award is named after the first President of NSC, a noted safety pioneer who believed that the success of the safety movement would depend on educating engineers, top executives and the general public on the business benefits of EHS.

To uphold his legacy, the Award honors measureable excellence in the triple bottom line of people, planet, and profit. Utilizing a rigorous, evidence-based review process, the Campbell Award identifies and shares critical knowledge that enables current and future business leaders to enhance and sustain organizational vitality by embracing the intrinsic value of EHS. The Campbell Award honors a business, enterprise or entity that employs a management system in which EHS is well-integrated and recognized as a key business value.

The submitting organization must:

- ▶ Demonstrate that a well-integrated EHSMS leads to proven success in EHS practices and enhances the business's productivity.
- ▶ Show consistent improvement or sustained leading performance in EHS for a minimum of five years. Performance measurements must be established through recognized industry, national and/or international metrics.
- ▶ Show sustained, sound financial management, including at least five consecutive years of profitability or outstanding financial performance within relevant industries at the time of Award application; if a company has rated public debt, it must carry an investment grade rating.

Submitting organizations fall into two categories based on the number of employees. Organizations compete for the Award within their size category.

- ▶ **Category I** – Organizations with more than 1,000 employees and subunits of such organizations.
- ▶ **Category II** – Organizations with 1,000 or fewer employees and subunits of such organizations.

Criteria for both size categories are identical, however, each submittal is judged only against those in its size category. Once past the initial screening process, each submittal is evaluated during the Independent Review stage by at least three members of the International Review Panel. Submittals are judged against each of the evaluation criteria and numeric scores are assigned to each criterion; a minimum acceptable score must be achieved. A limited number of submittals advance to the Executive Review stage where finalists are selected by the Executive Review Committee for an onsite assessment visit. Onsite assessments are conducted at the finalists' headquarters and at least one operations site. Through an analysis and consensus process, a combined score is determined based on the submittal and the onsite visit results. This score determines the Robert W. Campbell Award winner.

campbellaward.org

ROBERT W. _____
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AWARD®



About **Research & Knowledge** at the Campbell Institute

Research is at the core of the Institute. Influenced by the diverse experiences of Institute participants, the Institute identifies critical EHS topics, those that are the most challenging and relevant to the EHS community at large and actively carries out new and continuing programs to share what works in EHS and business excellence and solve what doesn't. By exploring the proven approaches and practical methods of world class organizations and investigating those issues that hinder even our most-experienced participants, the Institute seeks to improve the safety of employees, the health of communities and the vitality of the environment.

Undertaken in collaboration with insightful, qualified experts at the NSC and other experienced thought leaders, research at the Institute is managed by the Research and Knowledge Subcommittee. This research takes many forms, from definitive literature reviews to succinct white papers on key issues to peer-reviewed articles and original investigative work on emerging topics. Yet no matter its shape and size, Institute research stems from a common approach, is anchored by rigorous, thoughtful analysis and is designed to be anything but another book on the shelf.

Put simply, what you hold in your hands represents hundreds of years of collective EHS knowledge and experience from the best of the best. We are excited to share it with you.

thecampbellinstitute.org/research

“In my specific industry, I understand the strategies for success and have the opportunity to learn more from my colleagues and peers. It is with the Institute that I can branch out and discover new ideas and research from other industries, leading to stronger practices for my own organization.”

ELLEN QUINN

VICE PRESIDENT OF EH&S,
UTC CLIMATE, CONTROLS & SECURITY
CHAIR, CAMPBELL INSTITUTE
RESEARCH & KNOWLEDGE SUB-COMMITTEE

About the **National Safety Council**

Founded in 1913 and chartered by Congress, the National Safety Council is a nonprofit organization whose mission is to save lives by preventing injuries and deaths at work, in homes and communities, and on the road through leadership, research, education and advocacy. NSC advances this mission by partnering with businesses, government agencies, elected officials and the public to make an impact where the most preventable injuries and deaths occur, in areas such as distracted driving, teen driving, and workplace safety and beyond the workplace, particularly in and near our homes.

nsc.org

Introduction

This report presents the results of a comparative analysis of 10 Campbell Award-winning applications. The Campbell Award recognizes organizations that achieve excellence through the integration of EHS management in business operations. The Award application and selection process is rigorous, and includes a thorough review by an international panel of experts. Finalists for the Award receive an onsite assessment of their headquarters and operations, which is conducted by an experienced team of EHS auditors.

The main purpose of this research is to describe the experiences of leading organizations in achieving success by protecting their workers, eliminating health hazards, improving the environment and conserving energy and other natural resources while striving to improve business performance and increase profitability. Illustrations of such efforts are highlighted throughout the report, drawing attention not only to the organizations' concrete EHS initiatives but also, whenever possible, to their impact.

The 10 applications were submitted to compete for the Award during the eight-year period from 2004 to 2011. All of the applications describe the organizations' more recent EHS achievements and some cover decades of continuous improvement efforts, but the winners commemorate the roots and the traditions of EHS that go back generations. Furthermore, the Award winners vary a great deal in terms of many important characteristics – industry affiliation, business geographic location, company size, corporate structure, business systems, EHS organization, labor and community relations, etc. – thus creating a holistic perspective on EHS management.

In spite of their organizational and industry differences, the applications share many common traits which make them fairly comparable and enable an interesting and thoughtful review of leading EHS programs. All of the applications were prepared using a uniform outline based on the Award evaluation criteria as presented in the annual Campbell Award Information Packet, including **Leadership, Integrated EHS Management System, Performance Measurement and Information Management, Linkage between EHS and Business Performance, EHS Results, and Other Factors.**

Therefore, it should not be surprising that the content of this report is also structured around those same criteria, with the exception of EHS Results. Though this section is the only component of the Award evaluation process not highlighted, the relevant information from this section is incorporated throughout the report.

Data collection and analysis of these applications was completed in the fall 2012. The research design used a combination of illustrative, interpretive, and cumulative methods commonly applied in case study and multiple-case study evaluations (GAO, 1990; Yin, 1989). Initially, each Award application was reviewed and analyzed separately by members of the research team. The research team included the 2011 Campbell Award Winner, United Technology Corporation; a member of the Campbell Institute Expert Portal/World Class Team Sub-Committee, General Motors; and staff of NSC and the Institute. The Expert Portal/World Class Team advises the NSC, as well as the Institute, on leading EHS systems and practices, which contributed to the design of the Journey to Safety Excellence®.

Information from the individual research was then consolidated, combined and examined as a whole. The themes that were designated based on the Award criteria and new themes that emerged guided further analyses.

Considering (a) the qualitative nature of the research design, (b) the complexity of the issues in question, and (c) the use of Award materials as a single source of evidence, it is not advisable to make broad generalizations based on the EHS efforts of the 10 Award winners. Also, this research did not aim to capture the entire spectrum of industry standards, corporate policies, or local practices addressing EHS performance. Nonetheless, organizations with an interest in evaluating their own EHS management strategies and comparing them against those that are considered “best in class” will find this report useful.

Principal research findings

Five principal findings have emerged from the comparison of the Award applications:

1. Excellence in EHS hinges upon the ability of individuals throughout an organization – from the CEO to frontline employees – to contribute to building and sustaining an organizational culture that places EHS on par with business performance.
2. Organizations that have successfully utilized a systems-based approach to EHS management have done so by adopting and adapting existing industry standards and international guidelines to ensure that EHS is seamlessly integrated across all business functions, structures, and geographies, including consideration of contractors. World-class EHS organizations also integrate their systems across environment, health and safety, and in many cases, quality, security and sustainability, with a focus on continuous improvement.
3. Organizations with world-class EHS records rely on a combination of leading and lagging indicators to promote and monitor continuous improvement activities of EHS management systems.
4. Regardless of the complexities and uncertainty of running a successful business, EHS remains firmly aligned with other organizational objectives, strategies, and values.
5. In addition to striving for EHS excellence on the job, world-class organizations extend their efforts to promote the health and safety of their employees off-site, as well as investing resources in the surrounding communities and environment. Off-the-job initiatives and corporate citizenship are supported through the sponsorship of programs and events, volunteering, community outreach, and improving global issues.

The remainder of this report explores in more detail each of these five conclusions. Those who are interested in learning more about the Campbell Award winners should visit the Campbell Award website (campbellaward.org) and read the applications themselves.

This report continues with an overview of the organizations included in the comparative analysis, with a focus on general business characteristics as well as EHS philosophy. Please note that some of the organizations below are described relative to the time at which they applied for the Campbell Award and may have since experienced mergers or acquisitions changing the names and natures of their business.



Business profiles and EHS philosophy



Noble Corporation: 2004 Campbell Award winner

Noble (NYSE: NE) is celebrating its 91st year of business in 2012. A leader in the oil and gas industry, Noble provides contact drilling services, well site and project management services, and engineering services. 3,265 employees of 38 nationalities in 14 countries collectively make up Noble's work force with a worldwide fleet of 59 mobile offshore drilling units. Headquartered in Sugar Land, Texas, Noble Technology Services Division and its four subsidiaries – Triton Energy Services Company, Maurer Technology Inc., Noble Engineering and Development Ltd., and Noble Downhole Technology – have contributed to innovations in the drilling industry such as using an offshore submersible drilling unit in the Gulf of Mexico in the 1930s, managing a drilling program in England to supply oil during World War II, using electricity from shore for offshore drilling in the 1950s, and being the first drilling contractor worldwide to receive third party certification to ISO 14001.

According to the "The Noble Way," employees are expected to do their best, support the team effort, work safely and be responsive at all times. The Noble Way consists of leadership's commitment to integrity, strong and deeply held values, and a true safety culture. The philosophy is translated into day-to-day practices that promote the value of the individual, teamwork, communication, job security, profit sharing, training and development, and goal setting.



Johnson & Johnson: 2005 Campbell Award winner

Headquartered in New Brunswick, NJ, Johnson & Johnson (NYSE: JNJ) is one of the world's most broadly based manufacturers of health care products. Established in 1886, Johnson & Johnson employs 128,000 people in 60 countries worldwide. More than 250 operating companies produce thousands of health care products spanning Johnson & Johnson's three business segments. The Consumer segment produces skin and hair care products, products for wound care, oral care, baby care, and nonprescription drugs. The Pharmaceutical business segment develops medicines in fields such as oncology, dermatology, immunotherapy, and more. Lastly, Johnson & Johnson's Medical Devices and Diagnostics division produces a number of products, from surgical implants to instruments and medical devices used in laboratories and physicians' offices.

According to Johnson & Johnson, "Healthy People, Healthy Planet, Healthy Futures" emphasizes accountability and management responsibility. Healthy People entails valuing all employees while promoting healthy lifestyles and safe work practices. Healthy Planet involves conserving natural resources, respecting ecosystems and reducing their environmental footprint. Healthy Futures is improving health care and supporting the well-being of people and communities.



Alcan Inc.: 2006 Category I, Campbell Award winner

Founded in 1902 and headquartered in Canada, Alcan (now Constellium) is a leading supplier of bauxite, alumina and aluminum, and a provider of engineered and packaging materials. The employer of 65,000 people at 430 facilities, offices, and R&D centers in 59 countries and regions, Alcan is comprised of four business groups—Bauxite and Alumina, Primary Metal, Engineered Products, and Packaging. The first business group mines and refines bauxite into smelter-grade and specialty aluminas, whereas the Primary Metal group is a producer of aluminum with smelters, power facilities, and technology and equipment sales centers operating worldwide. The Engineered Products group provides lightweight aluminum and composite solutions for the aerospace, mass transportation, and automotive industries. Lastly, Alcan's Packaging group consists of global multi-material food, pharmaceutical and medical, beauty and personal care, and tobacco packaging businesses.

According to "EHS FIRST," Alcan is determined to be a recognized leader of environment, health and safety excellence in everything they do and everywhere they operate. The four cornerstones of EHS FIRST include: (1) management commitment and leadership, (2) line ownership and meaningful employee involvement, (3) an aware, trained and committed workforce, and (4) effective two-way communication.



DM Petroleum Operations Company: 2006 Category II, Campbell Award winner

DM, headquartered in New Orleans, LA is the Management and Operating Contractor for the Department of Energy Strategic Petroleum Reserve (SPR). DM operates and maintains the government-owned facilities that make up the SPR, an oil reserve for disruptions in the availability of crude oil. The oil is stored in 62 large underground salt dome caverns at two industrial sites in Louisiana and two in Texas; each site holds 11.2 million barrels of oil. Oil can be moved quickly to designated points within mandated timeframes, such as during an emergency sale of oil during Operation Desert Storm, in 1999 to offset high heating oil costs in the U.S. Northeast, and after hurricanes Rita and Katrina in 2005. DM received its initial contract in 1993 and has renewal options through 2013. The U.S. Department of Energy requires that DM have no other customer, thus all of DM's profit is under the control of the DOE.

According to DM, their Purpose, Vision, Mission and Core Values are directly aligned with the SPR's (DOE) Vision, Mission, and Values. DM's Mission is to excel at delivering safe, secure, environmentally responsible and cost effective SPR operational readiness.



The Bahrain Petroleum Company (BAPCO): 2007 Campbell Award winner

The Bahrain Petroleum Company (BAPCO) was established in 1936 in the Kingdom of Bahrain and refines over 270,000 barrels of crude every day. One third of crude originates from Bahrain Fields, while the remainder is pumped from Saudi Arabia in pipelines extending 27 kilometers over land and 27 kilometers under the sea. BAPCO operates Bahrain Refinery, Sitra Tank farm, Sitra Wharves and Sea Island shipping docks, oil wells, Awali Village and all infrastructure and support facilities across the island. The company is the largest in Bahrain and the refinery is comprised of 25 processing units which can produce products such as Aviation Turbine Fuel, Gasoline, Kerosene, and Asphalt. BAPCO is also the largest employer in Bahrain, with 3,800 full-time employees and more than 1,300 contractors.

According to BAPCO, "Striving for Excellence in Managing SH&E" means that for any EHS initiative to succeed, everyone in the organization has to take part. A common theme is that all workforces have roles and responsibilities. Also, BAPCO's main focus is to integrate EHS into all operations.



Fluor Hanford: 2008 Category I, Campbell Award winner

Fluor Hanford was a business unit of Fluor Corporation and had a contract with the U.S. Department of Energy from 1996 until 2009 to manage and perform environmental-remediation work at the Hanford Site in Washington State. Because Hanford produced two-thirds of the country's plutonium for nuclear weapons through the 1980s, it left considerable chemical and radiological contamination at the site; 270 billion gallons of groundwater were contaminated, 2,300 tons of nuclear fuel stored underwater, 20 tons of material laced with plutonium, and 500 facilities were left contaminated. Fluor Hanford's 3,600 employees worked to remediate and close the site, dismantling former nuclear-processing facilities, cleaning up contaminated groundwater, retrieving and processing radioactive and chemical waste, and maintaining the site's infrastructure.

Safety is the first word in Fluor's business values, which are Safety, Integrity, Teamwork and Excellence (SITE). Fluor's corporate EHS Policy promotes safety as the cornerstone of Fluor's operations, supported by a corporate-wide HSE Management System which protects the worker and the environment. Its elements include: commitment and policy, planning, implementation, measurement and evaluation, corporate level, project level and HSE Board.



Gulf Petrochemical Industries Company (GPIC): 2008 Category II, Campbell Award winner

The Gulf Petrochemical Industries Company is the Arabian Gulf Cooperation Council's first petrochemical industrial organization in Bahrain. Founded in 1979 with production beginning in 1985, the company produces 1,200 tons of ammonia, 1,200 tons of methanol, and 1,700 tons of granulated urea per day from natural gas resources. GPIC's business sectors are the Manufacture of Fertilizer and Nitrogen Compounds and the Manufacture of Basic Chemicals. Three equal partners comprise the ownership of GPIC: The Saudi Basic Industries Corporation (SABIC), the Petrochemical Industries Company (PIC), and the National Oil and Gas Authority (NOGA). GPIC consists of three production facilities built on an artificial island which houses all utilities facilities, engineering, maintenance, and administrative buildings. The company has 522 employees and about 3,300 contractors.

According to GPIC, "Holistic Excellence" is a holistic approach that proves EHS is good for business. Under this credo, the success of an industrial enterprise is not only measured in profitability, but by the extent of compliance with the health, safety, and environmental systems and quality standards and the contribution to the community as a whole.



Schneider Electric North America: 2009 Campbell Award winner

Schneider Electric is a global specialist in energy management operations in over 100 countries, offering integrated solutions across sectors including, energy and infrastructure, industrial processes, building automation, data centers/networks, and residential applications. Headquartered in Palatine, IL, Schneider Electric North American Operating Division (NAOD) employs 19,000 people in 33 plant & logistic sites. A division of Schneider Electric, Schneider Electric North America provides service to customers in the U.S., Canada, and Mexico. Brands of Schneider Electric's products include Square D® and Juno® Lighting Group.

Environment, health and safety, along with community, are the guiding principles of Schneider Electric North America. NAOD's people are their most important asset and therefore safety and health is top priority. People utilizing safe practices, being environmentally conscious and being healthy at work, home and at play is at the heart of their safety credo.



The Dow Chemical Company: 2010 Campbell Award winner

Established in 1897, Dow (NYSE: DOW) is a diverse chemical company that provides a broad range of products to customers in 160 countries, including: fresh water, increased food production, renewable energy generation, and pharmaceuticals as well as paints, packaging, and personal care products. Headquartered in Midland, Michigan, Dow employs approximately 52,000 people worldwide and manufactures more than 5,000 products at 214 sites in 37 countries. The company's five business segments include Dow Advanced Materials, Health and Agricultural Sciences, Basic Chemicals, Hydrocarbons and Basic Plastics, and Performance Products and Systems.

Of the four pillars of Dow's corporate strategy, "Setting the Standard for Sustainability" is just as important as achieving financial success or hiring the best people. For everyone at Dow, sustainability means making every decision with the future in mind. It's all about Dow's relationship with the world — helping to create economic prosperity and social value while contributing to the preservation of the planet. Dow's "2015 Sustainability Goals" demonstrate citizenship through stronger, safer communities, offer solutions that will make a lasting, positive improvement on the world, and reduce their footprint by understanding their impact on global ecosystems and working toward the efficient and effective use of the planet's precious resources.



UTC Fire & Security: 2011 Campbell Award winner

In 2003, United Technologies Corporation (UTC) acquired a service business with global operations (Chubb Plc.) and in 2005 acquired Kiddie Plc. forming UTC Fire & Security (UTCFS; now UTC Climate, Controls & Security). In 2010, UTCFS acquired GE Security, culminating in a workforce of 46,000 employees. Headquartered in Farmington, CT, UTCFS is a leading provider of life safety products and services, with employees in more than 35 countries serving more than 1 million customers. Services include high-risk businesses such as cash logistics, compressed gas installations, armed response, and service in chemical plant and oil platform operations.

UTC's EHS Policy sets the highest standards for protecting the health and safety of their employees, neighbors, and environment. UTC believes that performance worldwide should be second to none. "Safety First" entails focusing on effective acquisition integration, management system implementation, and employee engagement. The "EHS Cardinal Rules" include growing as an organization and at the same time keeping their employees and customers safe.

Research findings and analysis

Leadership

Excellence in EHS hinges upon the ability of individuals throughout an organization – from the CEO to frontline employees – to contribute to building and sustaining an organizational culture that places EHS on par with business performance.

Leadership is the first among the evaluation criteria of the Campbell Award. The emphasis is on the ability to exert positive influence through words and actions in order to change peoples' beliefs, attitudes, knowledge, and behavior regarding workplace safety, employee health and environmental protection. Senior executives are expected to inspire, build and uphold a strong organizational culture of EHS values and practices among others, but they also need to portray their own commitment to EHS by showing how management style and systems are aligned with EHS ideals and how EHS standards for leaders compare to those of other employee levels.

This section highlights Campbell Award-winning organizations' approaches to leadership. The 10 Campbell Award winners exemplify leadership in a variety of ways, but with common key components.

These components include the following:

- ▶ Personal commitment of the CEO
- ▶ Robust and comprehensive training that equips EHS leaders, managers, and future executives
- ▶ Performance plans and associated metrics that are designed to promote EHS as a culture
- ▶ The empowerment of every employee to be a leader in EHS

These concepts are outlined below with specific examples from Campbell Award-winning applications.

- ▶ **Regardless of the corporate structure, EHS responsibilities must reside at the highest level within an organization. Campbell Award winners designate the Chairman, CEO and/or a C-suite executive as accountable for EHS.**

Johnson & Johnson's Office of the Chairman, the highest executive level within the organization, is accountable for and committed to EHS. The Board of Directors, through its Public Policy Advisory Committee, oversees the public health programs, geared towards employee and community environmental health and safety.

Similarly, Dow Chemical's corporate EHS goals are determined by the corporate sustainability team, which is co-chaired by the Executive Vice President for Business Services and Chief Sustainability Officer. Supported by the corporate policy, assessments of the effectiveness of EHS initiatives and other matters related to corporate social responsibility fall under the purview of the EHS committee of the corporate Board of Directors.

At Alcan, the Board of Directors has an EHS Committee that is responsible for reviewing EHS objectives set by the organization. The leader of EHS programs is the vice-president of EHS and sustainability, and reports directly to the CEO.

- ▶ **Many of the Award winners explicitly state and exemplify that effective EHS leadership begins with a personal commitment to the organizational values of integrity, accountability, trust, and transparency. What the CEO says and does cascades throughout the organization and sets the tone for everyone else. Additionally, major business decisions by management teams set an example through consideration of EHS.**

When the current corporate EHS policy was rolled out in 2002, Alcan's then President and CEO and other senior executives signed a formal commitment to make EHS an integral part of every job, program and process, to fulfill their EHS obligations, and to establish the EHS framework. The EHS Policy (EHS FIRST) was promoted by senior leaders and used as the foundation to actively and visibly promote and drive EHS excellence at work and in the community. The subsequent CEO assumed a similar allegiance to EHS FIRST, and worked to continue to demonstrate that EHS is part of the Alcan culture. Today, the organization's senior leaders also participate in management EHS observation tours and hierarchical safety inspections.

Dow Chemical's due diligence review seeks to identify significant EHS issues, such as injury and illness rates, environmental emissions, and environmental liabilities. The decision to purchase a company is affected by the results of this due diligence review. Another example of this is Dow's "Safety First, Pounds Second" policy. During the annual capital authorization process, EHS issues that need expenditures for resolution are given the highest priority.

➤ **Successful implementation of EHS programs and initiatives requires and depends on having competent managers whose role is translating the CEO's vision and corporate mission into actionable steps. Campbell Award winners invest a great deal of effort and resources into providing managers and supervisors with the knowledge and skills they need to perform their duties.**

At Alcan, site managers are responsible for assessing training needs and associated EHS performance of their staff. Accordingly, the Leadership Competency Program offered at the corporate level covers three areas: strategic leadership training, site leadership training and strategic partner training. These training programs are designed to empower managers and supervisors in their role as builders of a strong EHS culture. The Leadership Competency Program incorporates elements of peer-to-peer coaching, learning and development opportunities.

➤ **Among Campbell Award winners, EHS responsibilities and metrics are integrated into the performance review process for managers and supervisors, which further identifies EHS as a core business driver in line with production and profit.**

At Dow Chemical, employees, including senior executives, are required to include a personal EHS goal in their performance plans and metrics. These goals are not set against specific EHS targets such as injury rates, but focus on tasks that are demonstrated to prevent injuries such as completing safety observations and hazard assessment cards. For senior executives, EHS performance is a key factor in determining management compensation, promotions, and job assignments.

➤ **Developing EHS leaders with a solid understanding of business operations is as critical as developing business managers who possess strong safety values. Campbell Award winners develop and implement robust training programs for leaders, from the C-suite to the EHS professional, that indoctrinate the leader into the EHS requirements and management system.**

The Safety Training Supervisor position established by Noble allows employees on a career advancement path to gain safety experience and also encourages safety professionals to get actively involved in operations management. Nearly half of the Noble staff who has served in this role since 1996 has been promoted to various management positions within the organization.

Additionally, in 1998, Noble introduced the Safety Leadership Workshop. This workshop offers leadership and safety training with a customized curriculum for crews. The workshop continues an emphasis on important leadership and safety topics such as communication, decision-making, training, coaching and counseling. The specific topics offered include leadership skills, EHSMS, personality assessments, risk management, liability insurance and claims, observation skills, stress management, behavior based safety, appraisal and coaching, and industrial relations. Since the Workshop was introduced, Noble has recorded a 71% reduction in the total recordable incident rate and an 83% reduction in the lost time incident rate.

► **The 10 organizations that are the subject of this research clearly show that empowering workers to take control of the EHS aspects of their jobs is critical to building and sustaining a strong organizational culture. Thus, many Campbell Award winners have a right to stop work program.**

The notion of worker empowerment was strongly embraced by Fluor Hanford's management and staff and supported by several corporate initiatives. The Union Safety Representative Program assigned EHS representatives to major projects in order to create an open communication channel and facilitate the identification and resolution of EHS concerns. Fluor Hanford, an organization of about 3,600 permanent staff and contractors, also established 50 Employee Zero Accident Councils. These Councils operated under a charter and were responsible for proactively working together on safety concerns and opportunities for improvement. Moreover, the Worker Safety and Health Program Description included a comprehensive list of guaranteed rights for employees, including job planning, hazard analysis, pre-project safety briefing, post-project feedback and stop work responsibilities. Fluor Hanford's Stop Work policy was noteworthy because it called for getting the employees involved, not only in identifying hazardous conditions, but also in finding ways to eliminate them.

► **One of the most important demonstrations of EHS leadership is actively encouraging and supporting a strong EHS culture. Campbell Award-winning companies facilitate this culture through a variety of mechanisms, but they also gauge the culture by conducting employee perception surveys focused on EHS.**

10 DM Petroleum Operations employees have been trained and serve as Special Government Employees (SGE) in support of the OSHA Voluntary Protection Program (VPP), which involves mentoring other organizations interested in joining the VPP program. The seemingly small number of trained SGEs is not insignificant, considering that the organization has a total of about 300 employees. DM also strategically allocates funding to support employee professional development through attending and presenting at EHS conferences, symposia, training workshops, and similar events.

In the annual employee satisfaction survey conducted by an independent research firm, approximately 95% of employees said that DM was a safe place to work and most employees believed in management's commitment, particularly in the area of EHS. The employee survey is yet another example of leadership commitment creating a culture of inclusiveness, transparency, and accountability. The results of the survey are incorporated into the strategic planning process, ensuring that employee concerns are considered.

Summary

This comparative analysis of the Campbell Award winning applications demonstrates that EHS leadership is universally understood to apply to everyone within an organization who has a personal stake in addressing the EHS challenges facing that organization. Some EHS leaders occupy executive offices and hold a global perspective on EHS. Their personal vision and commitment serve as the basis for articulating corporate EHS policies, which in turn guide the development and implementation of EHS practices that are meant to be undertaken at the local level. Other, less visible EHS leaders work on or near the assembly line and their leadership qualities shine through in their contribution to hazard recognition, communication, peer-to-peer education and creative problem solving. No matter the job grade level, it is the individual skills, knowledge, attitude, actions, and ability to inspire and influence the actions of others that define true leaders in EHS.

Integrated EHS management system

Organizations that have successfully utilized a systems-based approach to EHS management have done so by adopting and adapting existing industry standards and international guidelines to ensure that EHS is seamlessly integrated across all business functions, structures and geographies, including consideration of contractors. World-class EHS organizations also integrate their systems across environment, health and safety, and in many cases, quality, security and sustainability with a focus on continuous improvement.

Integrated EHS Management System is the second category of evaluation criteria for the Award. A typical EHSMS is designed around a continuous improvement cycle – plan, do, check, act – that encourages organizations to start by identifying concerns, setting clear and measurable goals and establishing and communicating a plan of action. This is followed by translating plans into action, assessing what is and what is not working as intended, concentrating on areas in need of improvement, and starting a new cycle either by setting more challenging goals or by expanding the scope of the entire effort.

A number of voluntary frameworks for implementing safety and health management systems have been established, including the Occupational Health and Safety Assessment Series of the British Standards Institute (OHSAS 18001) and the Occupational Health and Safety Management Systems standard of the American National Standards Institute and American Industrial Hygiene Association (ANSI/AIHA Z10). In the United States, the Voluntary Protection Program of the Occupational Safety & Health Administration as well as the National Safety Council also strongly supports effective occupational safety and health management systems. The International Organization for Standardization based in Switzerland has published a set of standards for adopting environmental management systems (ISO 14001), as well as quality management systems (ISO 9001). The EHSMS design among virtually all Campbell Award winners incorporates the elements of one or more of these guidelines with an emphasis on leadership commitment, employee participation, communication, hazard recognition and control, workplace design, implementation and operation, performance measurement, and training. Most of the Award winners also seek third party verification of voluntary standards.

A successful EHSMS depends largely on the assimilation of system elements into a process of continuous improvement that is integrated into the daily performance of the organization. Management is one of the most significant contributors to this implementation: by clearly defining the EHS policy and objectives, ensuring periodic reviews of the system, securing sufficient resources and holding managers and supervisors accountable for EHS training and practice, they ensure the successful execution of integration activities. An important component of this active leadership is promoting a high level of communication about EHS throughout all levels of the organization. As a result of this open dialogue, employees involved with the EHSMS should feel empowered and benefit from performance improvements, thereby increasing acceptance and support of policies. Employees who are engaged in EHS efforts may derive more out of competency and skill development activities, which can have a positive impact on on- and off-the-job EHS activities.

The interpersonal processes involved in the integration of the EHSMS must coincide with more formal procedures that assess EHS performance. In addition to accurate documentation for measuring continuous improvement, assessments and audits can objectively evaluate compliance with and any gaps in policies and procedures. Furthermore, a continuous process of identification, analysis, planning and evaluation is expected for the reduction of risks and hazard control. Workplace design and engineering can also contribute to the prevention of workplace risks, environmental impacts and associated hazards. Lastly, an EHSMS can help meet compliance with regulatory standards across sites, both nationally and internationally, by implementing programs and tracking changes involved in the revision of EHS information, practices and procedures.

Integrated and robust management systems, focused on continuous improvement, are the foundation of Campbell Award winners. Campbell Award-winning organizations provide excellent EHSMS models that are utilized to guide the process of overall EHS planning, strategic development and alignment, communication, decision making, information management, program implementation and evaluation. Many Campbell Award-winning companies utilize and are certified by the above-referenced international standards.

Key elements of Campbell Award-winning organizations' integrated EHSMS include:

- ▶ Management that demonstrates a strong commitment and remains heavily involved in the EHSMS
- ▶ Integration of EHSMS components, not only across EHS procedures and policies, but also in business operational systems
- ▶ A robust audit program in place to identify system successes and weakness, with an external verification function
- ▶ An EHSMS in which cultural challenges are anticipated and solutions are incorporated
- ▶ Substantial consideration of contractors, suppliers, and vendors in the EHSMS

These concepts are outlined below with specific examples from Campbell Award-winning applications.

- ▶ **As stated in the Campbell Award submission guidelines, organizational management must demonstrate a strong, genuine, continuous, and personal commitment to the EHSMS and its elements. These responsibilities are generally assigned to an individual, who is supported by a cross functional team.**

At BAPCO, the leadership and direction for the EHSMS is provided by the Industrial Safety Committee, which is chaired by the Deputy Chief Executive and includes all corporate division managers. Since 1983, members of the Committee have been meeting monthly to ensure the successful implementation and sustainability of the corporate EHSMS and programs.

Corporate EHS improvement initiatives, supported by an EHSMS, require strong leadership commitment from all organizational levels, particularly in organizations with a global presence. EHSMS initiatives at Johnson & Johnson (more than 100,000 employees in 57 countries) are typically assigned a member of the corporate Executive Committee who serves as a Worldwide Champion for the program. Worldwide Champions are expected to be actively involved in leading, motivating, and monitoring the initiative in a highly visible way.

- ▶ **One significant accomplishment shared by Campbell Award winners is the extent to which they have been able to superimpose and integrate EHS with their business structure and operating procedures, as well as integration of all EHSMS. This includes everything from business strategy development to metric tracking and reporting.**

DM Petroleum Operations has succeeded in aligning EHS planning with budget development to ensure that EHS initiatives have access to resources whenever necessary. All new projects competing for funding are rated and prioritized, with EHS projects placed at the top of the list. Business expansion proposals typically include an estimate of environmental impact, regulatory requirements, and other EHS-related factors. In addition, DM is the only federal government prime contractor to have received the prestigious Malcolm Baldrige Quality Award (2005), perhaps the highest honor for quality and business performance excellence. As a result of the adoption of a Baldrige-based business management model married with an ISO 14001-based EHSMS, and the OSHA Voluntary Protection Program, DM continuously improves their EHSMS performance. The management team is certain that these management systems complement and support each other, leading to world-class business performance.

Noble's EHSMS integrates policies and procedures including: corporate policy development and implementation, compliance with regulatory and client requirements, goal setting, performance measurement and continuous improvement. Their corporate policy, for example, is supported by local EHS Management System procedures and documentation.

At Schneider Electric North America, the corporate production system's purpose is to standardize the manufacturing process across all work sites and locations. It is also being used to integrate business, safety and environmental processes. The system currently combines elements of Lean Manufacturing, Short Interval Management, Six Sigma, Process Architecture, Process Engineering and Logistics. At the date of their application, Schneider Electric was working to integrate quality (ISO 9000), environment (ISO 14001-2004), and safety (OHSAS 18001-2007) management components into a single system so that all three processes are treated equally.

Dow Chemical's Operating Discipline Management System (ODMS) integrates policies and requirements for Manufacturing, Quality, Environment and Health & Safety. The ODMS also ensures that the components of the management system are implemented consistently across the organization, as well as outlining requirements and procedures around community awareness, emergency preparedness and response, distribution safety, process safety, security and product stewardship.

GPIC provides another example of a fully integrated EHSMS that combines safety and health with environmental and quality components. As a result, in 2007, the GPIC system met the requirements of a fully integrated management system under the British Standards Institute's Publicly Available Specification PAS 99.

➤ **Effective EHS management is impossible without a systems-based approach, but any formal EHSMS will itself become a liability if its design does not include a robust audit process. Most Campbell Award winners seek third party verification of their integrated management systems and/or utilize external auditors to ensure the EHSMS is high-functioning and continuously providing organizational value.**

Alcan carries out regular assessments of its EHSMS by requiring each site to conduct a comprehensive audit at least once every three years. As a result of the audit, non-conformances are identified and investigated, and corrective action is implemented. The results of these audits are reported to the business unit and ultimately up to senior management. The lessons learned from these

assessments are used to continuously improve the EHSMS and to help develop a strategic plan for the following five years.

At Schneider Electric North America, there are four major audit processes, including a team assessment, a scorecard, a critical focus checklist and a safety diagnostic. The team assessment process is an integrated and comprehensive three day audit conducted every three years by a team of EHS professionals. The scope of the audit includes safety, security, health, wellness and environmental issues. Each audit assigns the facility a score of one to 100. Improvement goals are established based on the score and weaknesses identified.

➤ **Operating worldwide in both well-established and emerging markets generates its own distinct business challenges, such as language and cultural barriers, political instability, corruption and transparency issues, poverty, disease and human rights violations. Campbell Award winners actively recognize, incorporate and address these challenges throughout their EHSMS.**

Alcan's uniform EHS policy and management system serve as a common denominator for instilling a culture of EHS excellence, integrity and collaboration among approximately 65,000 employees from 59 countries around the globe. The EHSMS, EHS FIRST, addresses business challenges on a global scale that have potential to affect both the company and its employees. Specifically, to accommodate language barriers that may have arisen due to Alcan's expansive and diverse sites, the company made available EHS FIRST manuals in English, French and several other languages in an online version, so managers and EHS specialists at every Alcan site would be able to fully comprehend the structure of its management system. Another example of this global approach involves Alcan's response to the Avian Flu pandemic. In response to the threat of disease, the company rolled out a Medical Preparedness and Crisis Plan for the entire organization, proactively protecting its employees and relations with others. This mindset paves the way for world-class EHS performance by applying the same high standards across the board, regardless of how little local law or regulation may demand.

Steady leadership from top-level executives is often necessary to build and sustain an effective system for strategic EHS management. Dow Chemical has created an orientation process for new business leaders to demonstrate the importance of EHS issues to the organization. When an executive takes on a new leadership role, the orientation process ensures that the individual is aware of the pertinent EHS process, safety, sustainability issues and opportunities for the business within the context of prior decisions and commitments. Following the orientation these new business leaders are required to make a presentation (following a checklist of items to cover) to senior EHS leaders to review their findings from the orientation and discuss any concerns or issues. New plant leaders also perform a similar safety orientation and review. In addition to consistency in EHS leadership, Dow also makes a minimum set of EHS standards applicable to sites in any geographical setting and meets the principles of Responsible Care. Standards are adaptable and are implemented according to stringency of local regulations; however, the Dow EHS core standards such as ensuring standard care at all Dow plants across the globe are continuously applied. Due to the reliability of such standards, Dow has joined forces with various international establishments, including the United Nations Environment Program and China's Ministry of Environmental Protection, to help implement the company's principles of care in countries throughout the world.

► **Integrating the EHS performance of contractors, suppliers, and vendors into the corporate EHSMS is a final key area that has received close attention among Campbell Award winners.**

UTCFS identifies and selects contractors that excel in business and operational practices, as well as environmental stewardship. The standard practice for contractor management includes a risk assessment of the work to be performed, communication of adequate controls and inspections to ensure those controls are in place. UTCFS EHS training and audit practices are also extended to UTCFS contractors worldwide, as UTCFS believes that contractor performance is tied directly to customer satisfaction.

The supply chain at UTCFS is also integrated into the EHSMS. For example, key suppliers are audited to the same EHS requirements as UTCFS sites. Selected suppliers are required to conduct an initial self-assessment, which is evaluated on-site by UTCFS assessors. Each supplier must meet UTCFS expectations within 18 months of conducting the self-assessment. At that time, the supplier can be nominated for the UTCFS preferred supplier program (about 160 preferred suppliers worldwide).

At GPIC, contractors are included in employee engagement activities, as well as community events. On an annual basis, GPIC hosts an EHS week and family evening. Not only are GPIC employees and their families invited to attend and participate in EHS week, invitations are also extended to GPIC contractors and their families. The EHS week includes painting and children's essays, but also provides the opportunity for contractors to set up demonstrations and exhibitions. GPIC uses the EHS week as an opportunity to demonstrate to contractors their commitment to EHS, while expanding community engagement opportunities.

Summary

The comparative analysis of the Campbell Award-winning applications indicates that these organizations have seamlessly integrated elements of their EHSMS into the daily performance of their operations. In addition to meeting regulatory and voluntary standards and guidelines, the assimilation of EHSMS across all business functions is supplemented by the high visibility of management involvement with and implementation of all aspects of EHS, the organization's treatment of cultural issues, utilization of external audits to ensure superior functioning and value, and attention to the EHS of all company contractors, vendors and other partners. Ultimately, the finesse in which these elements are integrated within the EHSMS enhances its cycle of continuous improvement and substantially contributes to organizations' abilities to address head-on the business challenges they encounter on a day-to-day basis.

Performance measurements

Organizations with world-class EHS records rely on a combination of leading and lagging indicators to promote and monitor continuous improvement activities of EHS management systems.

As reflected in two evaluation criteria of the Campbell Award, measuring EHS performance and using EHS-related information linked directly to business operations receive a great deal of visibility and resources among Campbell Award winners. In the Award criteria, emphasis is placed on the intersection of EHS performance with business excellence, and while the complementary use of both leading and lagging indicators is suggested, the importance and quality of leading indicators is highlighted. In order to successfully utilize and analyze these measures, data collection and reporting methods must be accurate. The information generated from the performance indicators should be meaningful, usable, and most importantly, easily accessible by all personnel throughout levels of the organization. If the measures tracked globally by the organization meet this criteria, they can then be used to benchmark against other organizations' data and ultimately showcase how EHS affects the triple bottom line by improving not only the organization itself, but communities and the environment as well.

This section highlights Campbell Award-winning organizations' approaches to performance measurements. While performance metrics are designed, tracked and reported in a variety of ways, **Campbell Winners are consistent across many key components of performance measurement, including:**

- ▶ Identification, accurate measurement and tracking of both leading and lagging indicators in order to not only reduce risks and impacts, but to improve the overall EHSMS
- ▶ Benchmarking against other company-owned facilities, as well as with other organizations that lead with EHS, both within and across industries
- ▶ Undertaking in-depth studies on EHS issues of concern, which can lead to a better understanding of EHS risks and their associated metrics
- ▶ Building on EHS to achieve sustainability

These concepts are outlined below with specific examples from Campbell Award-winning applications.

- ▶ **As part of their commitment to continuous EHS improvement, all Campbell Award winners, with no exception, track both leading and lagging indicators to assess the quality and impact of EHSMS and programs. Leading indicators are used because of their power to predict and prevent undesirable events. Additionally, Campbell Award winners utilize their indicators to benchmark against their industry, as well as leaders in EHS across the globe.**

Noble uses a combination of leading and lagging performance indicators to establish baselines, track performance and identify trends and opportunities. Additional measurements include audits and Job Safety Analyses (JSA) of specific tasks. As one result of tracking leading indicators, Noble's EHS staff identified hand and finger injuries as an area for improvement and implemented a pilot program intended to eliminate this type of injury. The pilot was so successful that a formal policy was put into effect for the entire organization.



Noble measures and reports numerous indicators that provide a historical baseline for tracking performance, including:

- ▶ Incidents, including First Aid; recordable; lost time; near hit/miss; damaged equipment; uncontrolled discharges (such as spills); consumption of diesel and oil/lubricants (gallons); emissions/waste; general waste/garbage; and regulated/hazardous waste including liquid paint and paint thinner, solvents, fluorescent light tubes, medical/biological waste, batteries and oily waste materials.
- ▶ Recycled materials (materials segregated from garbage and general waste)
- ▶ Engine diesel fuel consumption
- ▶ Emission of greenhouse gases
- ▶ Personnel (number of employees, terminations, turnover)
- ▶ Work permits
- ▶ Operations safety meetings (pre-tour, weekly, pre-job, post-job)
- ▶ Emergency drills (environmental, fire, abandon rig, hydrogen sulfide, man overboard, man down/injury, stability/ballast control and helicopter)
- ▶ Behavior-based safety observation of safe and unsafe actions
- ▶ Audits and corrective action taken

BAPCO's EHS Key Performance Indicators (KPI) emerge from the corporate mission, vision and strategic objectives and include both leading and lagging indicators to measure and highlight the strengths and weaknesses of the company-wide EHS management practices. BAPCO refers to their leading indicators as "proactive." A proprietary data management system is in place to track performance metrics related to the quality of accident investigation reports, adherence to personal protective equipment procedures and frequency and quality of safety inspections, safety meetings and follow-up actions. The "reactive" EHS performance is measured using the traditional lagging EHS metrics (e.g., injury/illness rates, lost days of work, environmental violations, and other similar losses). BAPCO utilizes internationally accepted standards to enable benchmarking with other refineries around the world.

The above-mentioned lagging and leading indicators are consistent with those tracked by many Campbell Award-winning organizations and are merely a sample of a diverse spectrum of metrics.

▶ **Using leading and lagging indicators to track EHS performance is essential for an EHSMS focused on continuous improvement. Equally important is setting, measuring and benchmarking EHS goals to learn from others and drive continuous improvements. Additionally, many Campbell Award winners proactively identify and study areas that will allow for more effective EHS programs and associated metrics, that reduce EHS risks.**

Schneider Electric North America, for example, uses a safety and environmental scorecard to report and track progress in six categories, including Management Committee, Employee Training and Awareness, Employee Involvement, Communication and Recognition, ISO 14001/ OSHAS 18001 implementation and MIR/LTA/Excursions. The scorecard is used to not only monitor improvement but also to benchmark facilities against each other. The benchmarking process is used to identify best practices from leading facilities and share these best practices in order to improve across the entire organization.

At BAPCO, studies on air quality, soil and groundwater and the marine environment have been conducted. For example, air dispersion modeling studies have determined the potential impact of refinery operations on the environment. In collaboration with university researchers, BAPCO also seeks to understand the trends in the ecosystem through regular marine studies. The organization uses both sources of this vital information to continuously improve the EHS goals that are set, as well as the associated metrics that are used to determine continuous improvement.

▶ **Most Campbell Award winners not only strive for continuous improvement in their performance indicators, but in sustainability as well. Many Campbell Award winners utilize both their EHSMS and their performance indicators to set and achieve sustainability goals.**

When their 2015 Sustainability Goals were announced in 2006, Dow broadened its commitment beyond the traditional EHSMS scope. In setting the goals, Dow considered how the company could use science and technology to make ambitious contributions to stakeholders, to the chemical industry and to the world. The 2015 Sustainability Goals include: Local Protection of Human Health and the Environment, Product Safety Leadership, Sustainable Chemistry, Breakthroughs to World Challenges, Energy Efficiency, Addressing Climate Change and Contributing to Community Success. The specific targets for Local Protection of Human Health and Environment are outlined below:

- ▶ **Injury and illness rate:** Achieve a rate of 0.12 per 200,000 hours of work, including both Dow employee and contractor injuries.
- ▶ **Severity rate:** Reduce the injury severity rate by 75%. The severity rate is a similar measure to the injury and illness rate, but weights incidents according to injury severity in order to focus prevention efforts on minimizing the real impacts of injuries.
- ▶ **Severe motor-vehicle crash rate:** Reduce the rate of motor-vehicle crashes causing or likely to cause injuries for all Dow employees to 0.28 incidents per million miles driven.
- ▶ **Loss of Primary Containment (LOPC) incidents:** All sites/businesses combined will have fewer than 130 LOPCs (leaks, breaks and spills), with no more than 15 Category 2 incidents, eliminating Category 1 incidents.
- ▶ **Transportation incidents:** Dow will reduce the number of hazardous material transportation LOPCs by 75% and eliminate highly hazardous (toxic inhalation hazard and flammable gas) material releases.
- ▶ **Process Safety incidents:** All sites will reduce process safety incidents by 75% and the severity rate by 95%, based on the 2005 baseline.
- ▶ **Environmental Releases:** Dow will reduce company-wide emissions of volatile organic compounds (VOCs), nitrogen oxide compounds (NOx), and priority compounds each by 30%. Dow will also re-use 300 million pounds of by-products as raw materials, instead of disposing as waste.

Dow has made significant improvements as a result. As reported in the Dow Campbell Award application, in 2009, as compared to 2005, the Injury/Illness rate at was 0.29 per 200,000 hours worked – a 40% reduction from 2005 injury rates. In addition, the injury severity rate dropped by 50%. The number of process safety incidents dropped by 50% and the 2009 severe motor-vehicle crash rate of 0.26 per million miles driven was already less than the 2015 goal of 0.28 per million miles driven. For environmental metrics, the number of LOPC incidents was reduced by 65% and transportation LOPCs were reduced by 45%. Absolute greenhouse emissions were reduced every year since 2006 and 2009 emissions were 17% less than 2005 emissions.

Summary

The comparative analysis of the Campbell Award-winning applications reveals that these organizations not only identify, measure, and track a thoughtful and uniformly-reported suite of leading and lagging indicators, but utilize these indicators broadly in internal, industry-wide, and cross-industry benchmarking efforts. As a result of these benchmarking efforts and the consistent tracking of progress, Campbell Award winners are able to use the indicators they have developed to meaningfully affect change within their organizations and drive continuous improvement within their EHSMS. At the highest levels of performance, Campbell Award-winning organizations seek to move beyond the traditional focus of an EHSMS and drive sustainability across their organization and industry, with an ultimate goal of improvements for the world at large.

Linkage between EHS and business performance

Regardless of the complexities and uncertainty of running a successful business, EHS remains firmly aligned with other organizational objectives, strategies and values.

The next section of evaluation criteria for the Campbell Award is the linkage between EHS and Business Performance. As a core value of the organization, with management as responsible for EHS performance as they are for business operations, EHS can be fully integrated into and function as a business process. If the entire organization embraces EHS principles that are aligned with corporate objectives and strategies, EHS will then address changes in other organizational functions and, through performance measures, provide feedback on the success or failure of different programs. In essence, the complementary nature between EHS and business performance excellence should ultimately result in improvements in efficiency, productivity, quality, profitability and in the end, solid financial returns.

This section of the report highlights the experiences of Campbell Award winners who were able to remain consistent and even improve their ability to operate safely and with minimal impact on the environment, despite any business challenges placed in front of them.

Key components in creating a linkage between EHS and business performance for the Campbell Award winners include:

- ▶ Using successful business process in the design and implementation of the EHSMS
- ▶ Integration of the EHSMS during the acquisition process, as well as onboarding of new facilities and staff
- ▶ Conducting a EHS cost benefit analyses
- ▶ Utilizing the EHSMS for operational readiness in unexpected situations

These concepts are outlined below with specific examples from Campbell Award-winning applications.

- ▶ **Campbell Award winners utilize successful business management strategies in order to improve their EHSMS. These strategies can include recognition and rewards for achievement of EHSMS goals, strategic planning and operational reporting, including EHS, and utilization of business efficiency processes to improve EHS results.**

At Noble, operations managers are accountable for the financial, operational and safety record of their units. Noble has created a bonus program (5-75% of annual salary) that rewards employees for reaching specific financial and operational targets that improve shareholder value. Safety results carry the highest weight – 50% – in the formula used to calculate bonus payouts, thus demonstrating that working safely is the most important action an employee can take to receive recognition for their performance on the job.

At the company-wide level, a centralized database accessible to all management personnel is maintained to house information about drilling operations with daily updates on safety-critical events that may affect operational readiness and financial performance (e.g., lost time incidents, recordable incidents, near misses). A database has also been developed to identify hazards by gathering specific information on every job, task and chemical. Employees participate in the data collection and review process in order for them to assist in improvement of work methods.

Noble's worldwide weekly conference call includes all business units and always starts with a report on EHS progress. Other agenda items typically include operating results, market opportunities and corporate financial performance. In addition to the conference call, the corporate EHS committee meets quarterly to present results, assess goals and performance and raise concerns. In addition to the Chairman and CEO, senior management from operations, risk management, human resources, engineering and other functions attend committee meetings in recognition of the strategic importance of EHS to Noble's business.

Noble has also employed the Lean Six Sigma process to improve operations, but also to experience improvement in EHS. At the Brazilian operation in 2003, the use of Lean Six Sigma resulted in a 20% reduction in downtime, a 46% reduction in lost-time injuries and a 54% reduction in recordable incidents. Noble reported that the use of Lean Six Sigma not only improves efficiency but also raises employee awareness, which leads to an increased focus on EHS.

➤ **Evaluation of potential environmental liabilities is a critical component in the consideration of acquisitions. Campbell Award-winning companies proceed with acquisitions not only after review of liabilities, but after their efficient use of their EHSMS to guide the process. Planning for and integrating the EHSMS is of the highest priority in order to expedite the creation of a cohesive organization, to save lives, prevent injuries and improve the environment.**

At UTCFS, the EHSMS is essential in the integration of new acquisitions and the EHS staff always participates, along with legal, human resources and business development staff, among others. The staff and management at the acquired organization quickly learn that EHS is a core business value. The first step in the process is to introduce the EHS Cardinal rules, a set of rules that keep employees, customers, contractors and communities safe. Another key component is measuring EHS performance through Achieving Competitive Excellence (ACE). ACE is a quality and efficiency program that also includes progress on EHS targets. Sites can achieve different levels of certification on EHS metrics, audits scores and implementation of EHSMS. If these EHS goals are not met, the site cannot advance to the next level regardless of their operational metrics. New acquisitions are introduced to ACE and EHSMS concurrently. New acquisitions also quickly receive EHS Leadership Training for management. This training exposes management to the corporate EHS philosophy, objectives and the EHSMS.



Progress on the EHSMS implementation by the acquisition is evaluated through a gap assessment process. The gap assessment is conducted by a team of EHS professionals and identifies EHSMS gaps, strengths and weaknesses. A year after the gap assessment, and every five years thereafter, a review is conducted and a score is given. UTCFS has improved these scores every year since the first one was conducted in 2005.

The effectiveness of Dow's EHS processes is also demonstrated by the improvements in the performance of acquired companies. In 2001, Dow acquired the Union Carbide Corporation, which was one of the largest chemical companies in the world at the time. In 2009, the injury rate had decreased at one facility by 85%, and Loss of Primary Containment incidents decreased by 64%. In 2009, Dow acquired the Rohm and Haas company, another large chemical company. Following the acquisition, the 2009 injury/illness rate decreased 26% from the 2008 rate to a record low of 0.54 per 200,000 hours worked.

➤ **A cost benefit analysis is an important, key business decision-making tool and includes a process for calculating and comparing the benefits and costs of a project, decision or policy. Campbell Award-winning companies also use a cost benefit analysis in making EHS decisions, but it is conducted in a manner to include both hard and soft costs, as well as an emphasis on worker health and safety, innovation, community and competitive advantage.**

Dow conducted a cost-benefit analysis of the operational and management changes that were made to meet their 2005 EHS goals. The result of the analysis showed that the \$1 billion in improvements to reduce energy usage, wastewater and chemical emissions resulted in an overall value to the company of more than \$5 billion. Additionally, improvements made in process safety, personal safety, environmental releases and transportation incidents produced an additional \$950 million in savings. Between 2005 and 2010, Dow continued to experience savings totaling more than \$4 billion in the areas of energy use, wastewater and chemicals emissions. An additional \$100 million in savings resulted from fewer injuries, LOPCs and process safety incidents. Projects to reduce and reuse waste returned a Net Present Value of more than \$2 billion per year.

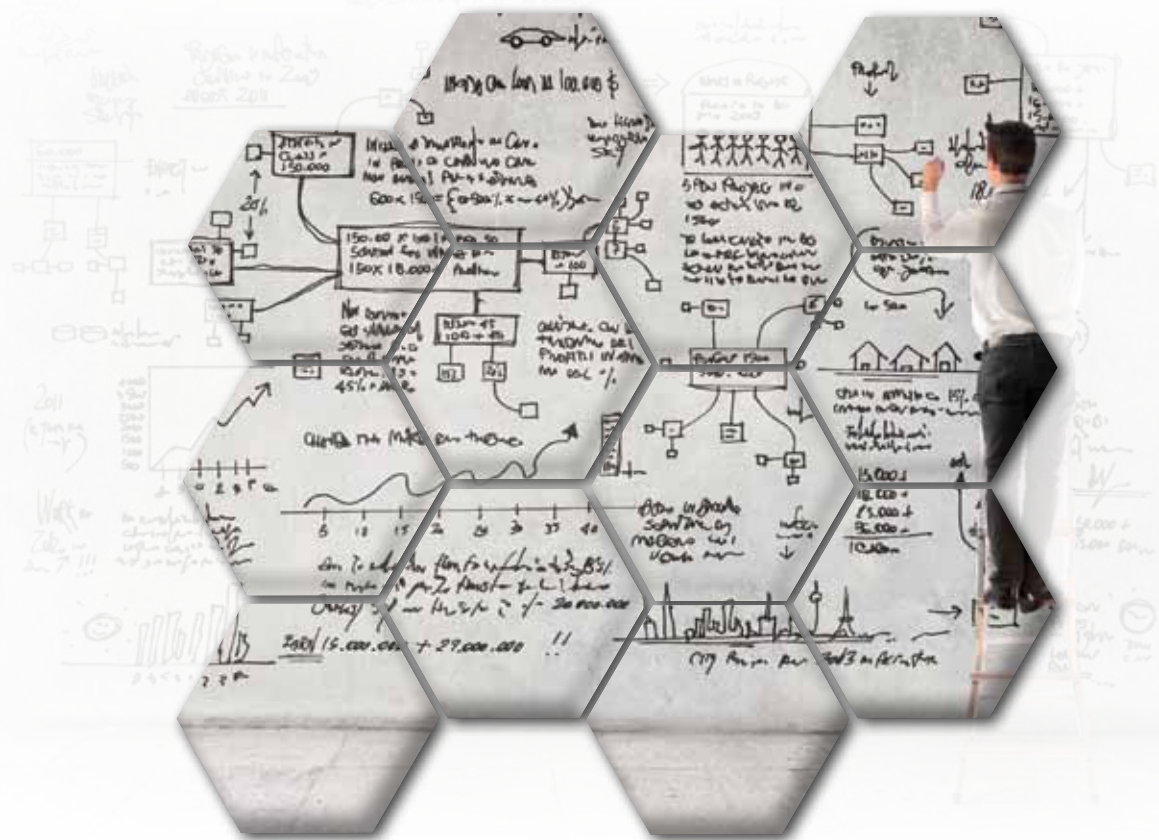
➤ **In the face of adverse and sometimes unexpected events, such as a natural disaster, an organization's business performance is often determined by the state of and its ability to rely on EHS. Campbell Award-winning companies display operational readiness which allows their business processes to not only continue to function, but respond to crises and thrive in times of uncertainty.**



DM Petroleum Operations' response to Hurricanes Katrina and Rita speaks volumes about the organizational culture, the relationship between the management and employees and the ease in which the organization performs in dire situations. Despite the disastrous emergency situation, DM's employees were determined to persevere. It was decided that the corporate operations center would be transferred to a temporary site with Katrina's landfall imminent and, when that community was overwhelmed by evacuees from surrounding areas, the operations center was moved again. The workforce stayed on to keep the sites operational while they were facing their own personal losses. Two weeks later, Hurricane Rita landed on the Gulf Coast, and the operations center had to be relocated for a third time. When the Presidential Order to distribute crude oil to refineries was received, DM was able to start pumping oil five days after being hit by two major hurricanes. Despite the many struggles and damage to facilities, there were no employee injuries or environmental releases during or after these two hurricanes. DM believes these heroic efforts may have been impossible had EHS not been a core corporate value.

Summary

The comparative analysis shows that collectively there is a significant relationship between EHS and business performance that is prevalent throughout the 10 Campbell Award-winning applications. Although the nature of running a successful business is complicated and at times problematic, management strategies can be successfully integrated into an organization's EHSMS in order to reflect strategic objectives and organizational values. These strategies can include recognition and rewards for achievement of EHSMS goals, strategic planning and operational reporting, the utilization of efficient business processes to improve EHS results, conducting a cost benefit analysis, using the EHSMS in acquisitions and integrating and utilizing the EHSMS for operational readiness in unexpected situations. As a direct result of the linkage between EHS and business performance, organizations benefit from improvements in efficiency, productivity, quality, profitability and in the end, solid EHS and financial returns.



Corporate citizenship & off-the-job initiatives

In addition to striving for EHS excellence on the job, world-class organizations extend their efforts to promote the health and safety of their employees off-site, as well as investing resources in the surrounding communities and environment. Off-the-job initiatives and corporate citizenship are supported through the sponsorship of programs and events, volunteering, community outreach and improving global issues.

The last common theme to emerge from the comparative analysis of the 10 Campbell Award applications was the organizations' corporate citizenship and involvement in off-the-job EHS initiatives. As important stakeholders in the communities in which they operate, organizations are expected to interact with and contribute to local, regional, national and global communities in regards to EHS issues. Management should demonstrate a certain degree of social responsibility, encouraging the development of corporate social partnerships throughout the organization and beyond. Similarly, by recognizing the organizations' potential to impact EHS issues externally, programs geared toward advocating EHS off-the-job in the lives of employees and their families should be prominent in their focus on health and wellness. This section highlights the efforts undertaken by Campbell Award-winning organizations in corporate citizenship and off-the-job EHS.

Key components of the corporate citizenship and off-the-job programs of the Campbell Award winners include:

- ▶ Corporate sponsorship of community programs which return multiple benefits to the organization
- ▶ Employee participation in corporate programs, both in terms of volunteer hours and dollars, which solidify the EHSMS culture throughout the organization
- ▶ Active partnership with communities on EHS issues which save lives, prevent injuries and improve the environment in an effective and efficient manner
- ▶ The availability of holistic health and wellness programs that are readily accessible and convenient
- ▶ Recognition on an individual basis of employees who demonstrate citizenship and off-the-job excellence

These concepts are outlined below with specific examples from Campbell Award-winning applications.

- ▶ **Many of the Campbell Award-winning organizations contribute to community or global programs and events through corporate sponsorship. These programs often flourish through the investments of the organization and the visibility of the sponsors' association with a specific cause.**

A prime example of this is BAPCO's long standing history of supporting the development and programs of various community organizations, events and initiatives. From the mid-1930s onward, BAPCO has been a proud supporter of numerous community efforts in the Kingdom of Bahrain involving the welfare of the population. The organization has invested \$5 million in training for Bahraini jobseekers, provided technical assistance by making firefighting equipment available and donated funds to the Bahrain Defense Force hospital. BAPCO's environmental efforts include support of EnviroArabia 2007, a regional conference dedicated to environmental protection issues in the petrochemical industry and becoming a founder of the Regional Clean Sea Organization, a consortium of national oil and shipping companies in the Persian Gulf region. The organization has shown interest and financial support for the advancement of science by investing in and hosting research conferences, exhibitions and symposia.

Other examples of corporate sponsorship are geared towards the improvement of EHS issues on a global scale. Dow Chemical's efforts to raise awareness through athletic events are apparent through the organization's support of the Blue Planet Run in 2007 and the Dow Live Earth Run for Water in 2010. Both events were focused on raising funds to bring clean and safe drinking water

to people and communities in need. The Dow Live Earth Run for Water was the largest solutions-based initiative in history aimed at solving the global water crisis. Held over the course of 24 hours, the run consisted of a series of 6 km runs/walks, which is the average distance many women and children walk every day to get drinking water.

► **Corporate donations are not the only noteworthy form of support for the community. Employee contributions – through investments in both time and money – serve to demonstrate the commitment to local efforts that permeates world-class organizations at all levels. In many cases, the internal principles of the organization lead to corporate citizenship efforts.**

Nowhere was this truer than at the Fluor Hanford site. By 2008, employees had contributed \$8.7 million, including a 50% corporate match, to the local United Way chapter. In addition, employees contributed more than 2,500 volunteer hours a year to over 20 community projects on their own time. Company representatives also participated in local community interest groups and presented “Safety Minute” messages on a local radio station. All these community involvement efforts combined present evidence of how a corporate partner’s time and active participation can be as important as monetary support in a community.

Another example is UTCFS’s unique approach to corporate citizenship and active participation throughout the company. Instead of implementing an organization-wide plan, UTCFS takes into consideration the diverse nature of each site and facility by encouraging each business to partner with local organizations that could benefit from their specified resources and abilities. For instance, employees at Kidde de Mexico have donated both their time and toys to the Michou y Mau Foundation in order to help severely burned children. At a Brazilian facility employees volunteer and donate supplies to the Center for Educational Rehabilitation of Vinhedo, an organization that assists physically and mentally disabled adolescents. Finally, employees from Chubb

Fire & Security educate young people by leading fire safety demonstrations that help over 60,000 participating Scouts across the United Kingdom earn a Fire Safety Badge.

► **By applying organization-wide principles to community outreach, organizations can address local EHS issues. Because of the fact that in some regions, organizations may have more resources available to them than those living in the surrounding areas, involving the community with the organization is the most efficient way to promote meaningful partnership.**

BAPCO holds an EHS Week every 18 months in order to increase safety awareness among employees, contractors and the surrounding community by providing visitors with informational booklets, DVDs and posters regarding EHS.

GPIC has also devoted considerable resources and taken responsibility for addressing the most relevant environmental issues by developing projects embraced by the GPIC workforce and community residents. The GPIC Charity Garden produces about 14 tons of fruits and vegetables that are donated to charities and families in need. Local students and researchers have been granted access to a garden with a wide variety of herbal and medicinal plant species. A fish farm was erected to replenish dwindling fish reserves in local waters. Lastly, a bird sanctuary, consisting of two man-made islands and artificial ponds, has offered a safe haven for indigenous and migrating birds.

In addition to supporting local communities, some organizations apply resources to creating an impact on a global scale. For example, Johnson and Johnson employees in Vietnam, where motorbikes and bicycles are a main form of transportation, began distributing helmets to their children, which eventually led the organization to sponsor a regional helmet distribution program in collaboration with a non-profit organization. This effort in personal safety led to the distribution of helmets to over 6,000 children in just two years. Johnson and Johnson's global corporate citizenship has also extended to environmental initiatives. The company implemented a recycling program at a Brazilian facility that previously sent over 3,800 tons of manufacturing waste to landfills per year. By viewing the waste as a resource, the facility turned the waste into usable products such as insoles for shoes, brake lining and plastic wood. This ultimately reduced the amount of waste sent to landfills to 20%. Another area of environmental impact for Johnson and Johnson is storm water management and recycling practices. Facilities in the United States and Belgium have been able to significantly reduce the use of pesticides and fertilizers and increase the level of wastewater and rainwater recycling.

UTCFS has taken a similar approach to waste elimination and re-use opportunities. By identifying local companies that can use UTCFS's materials in their products, the organization contributes to regional economic and environmental sustainability. For example, fire hose that is not being utilized at Kidde Brazil is given to a local manufacturer to be transformed into furniture support structures. This scrap material is also recycled into industrial netting by facilities in other parts of the world. In addition, Chubb Fire in the United Kingdom takes back any brand of fire extinguishers from their customers to recycle and reuse the parts in refurbishing extinguishers at another location.

▶ **Similar to their holistic approach to corporate citizenship, Campbell Award-winning organizations realize their responsibility for extending EHS beyond the workplace. In the assessment of the 10 Award applications, it was found that companies who lead in EHS excellence do so both on and, just as importantly, off the job. By implementing programs that highlight ways employees can engage in safe and healthy lifestyles in all aspects of their lives, Campbell Award winners promote another side of corporate citizenship.**

Fluor Hanford's continuous approach to EHS is evident in their Safety Matters 24/7 and Safe Decisions for Life programs. Safety Matters 24/7 is an online mechanism for employees to share their safety concerns and solutions, providing a forum for discussion and a resource for increasing the visibility of issues related to off-the-job safety. Safe Decisions for Life, meanwhile, focuses on hand safety and fall prevention at both work and home, emphasizing the ease with which employees can apply safety guidelines outside of work.

▶ **Another commonality among Campbell Award applicants and their off-the-job initiatives is the provision of programs targeted at improving health and wellness. Employee wellness promotion has long been known to produce tangible benefits through improved worker productivity, decreased absenteeism and lower costs associated with lost time, as well as through increased job satisfaction, improved employee morale and lower turnover. In other words, companies' stakes in their employees' health can result in positive outcomes for all parties involved.**

Johnson & Johnson's CareConnect program aims to promote healthy lifestyles by providing a multitude of resources for their employees. The program focuses on fitness, weight loss, nutrition, cholesterol reduction, blood pressure management, smoking cessation, mental health and cancer prevention by providing employees with access to health professionals, online resources and preventative screening. Such a multi-faceted program offers convenience that encourages its use and applicability across all levels of the workforce.

Another winning company that illustrates this mindset in particular is Dow Chemical. The Dow Health Strategy recognizes that investing in the health of the Dow workforce is essential to the long-term sustainability of the company. Dow has a Healthy Workplace Index in place to measure performance and to ensure that sites worldwide are providing resources for employees to maintain a healthy lifestyle. This includes smoking cessation support and exercise programs, healthy nutrition habits and food choices, case management following injuries or illnesses, reducing hazards in the workplace, stress management, and medical surveillance examinations and health surveillance and screening exams.

► **Having an employee recognition program in place goes a long way in reinforcing the importance of off-the-job safety in the minds of employees. Additionally, recognition programs can increase the visibility of safe actions and highlight organizational standards that are embraced beyond the workplace.**

Fluor Hanford's Heroic and Life-Saving Awards recognized employees who were identified as good Samaritans by saving lives on and off the job. In conjunction with "Spot Awards" given to employees, who displayed safe practices on the job, these awards served to raise awareness, support and commitment to safety 24 hours a day, 7 days a week and 365 days a year.

Summary

The comparative analysis of the 10 Campbell Award applicants demonstrates that corporate citizenship and attention to off-the-job issues are important attributes of organizations that excel in EHS. By extending resources, not only to their employees outside of the workplace, but also to communities both near and far, and by accepting responsibility for improving the quality of EHS in the world at large, these companies' actions exceedingly surpass expectations of external organizational involvement. The organizations' approaches to investment in and promotion of worthwhile causes, company-wide volunteering of employees throughout all levels of the organization, nurturing of corporate social partnerships and application of off-the-job programs, company-wide standards and employee recognition serve to illustrate the dynamic relationship between the implementation of EHS initiatives beyond the scope of the workplace and the benefits seen by the organizations. In the end, these benefits are wide-ranging and include gains at the bottom line, as well as improvements for the people and places that are actively involved in the outreach efforts.



Conclusion

Campbell Institute researchers conducted content review of the applications and highlighted some of the common themes as well as the unique practices among Campbell Award winners in a way that is aimed at enabling EHS, business leaders and other interested parties to leverage the experience, knowledge and practical tools developed by those considered “the best of the best” in EHS. The overarching objective of this research was the identification, dissemination and, ultimately, broad-based adoption of best practices in EHS management. The Institute’s hope is that the research will inform the EHS and business decisions that thousands of small and large employers around the globe make every day, impacting millions of employees on and off the job.

The research set out to identify what can be gleaned from the collective experience of these organizations in pursuing EHS excellence with an emphasis on supporting theoretical principles with real-life examples and evidence of achievement linked to measurable performance outcomes and associated risk reduction. The results of the study show that Campbell Award winning companies integrate their EHS and business management systems, with a particular focus on leadership, risk and impact reduction, performance measurement and continuous improvement.

The five main premises that frame the study in a more meaningful way are as follows:

- Excellence in EHS hinges upon the ability of individuals throughout an organization – from the CEO to frontline employees – to contribute to building and sustaining an organizational culture that places EHS on par with business performance.
- Organizations that have successfully utilized a systems-based approach to EHS management have done so by adopting and adapting existing industry standards and international guidelines to ensure that EHS is seamlessly integrated across all business functions, structures and geographies, including consideration of contractors. World-class EHS organizations also integrate their systems across environment, health and safety, and, in many cases, quality, security and sustainability with a focus on continuous improvement.
- Organizations with world-class EHS records rely on a combination of leading and lagging indicators to promote and monitor continuous improvement activities of EHS management systems.
- Regardless of the complexities and uncertainty of running a successful business, EHS remains firmly aligned with other organizational objectives, strategies and values.
- In addition to striving for EHS excellence on the job, world-class organizations extend their efforts to promote the health and safety of their employees off-site, as well as investing resources in the surrounding communities and environment. Off-the-job initiatives and corporate citizenship are supported through the sponsorship of programs and events, volunteering, community outreach and improving global issues.

These statements reflect five areas that the Institute believes are critical to organizations of all types who wish to achieve world-class performance and create healthy and high-performing workplaces and workforces worldwide. These statements also represent areas in which much more research regarding EHS is urgently needed – Leadership, Management Systems, Performance Measurement, Links and Impact on Business Performance and Corporate Citizenship. By synthesizing the lessons learned from this study, the Campbell Institute is poised to continue pursuing scientific inquiry on these essential EHS topics.

Moving forward, the Institute will undertake and encourage further global research on the issues addressed in this paper. There is a broad need for more rigorous research methods applied at the individual, organizational and systems level; an approach that combines multiple disciplines to arrive at a shared understanding of some of the key concepts in EHS (e.g., organizational safety culture and climate, impact of corporate EHS practices on community); and participatory research incorporating input from many stakeholders (e.g., industry, government, non-governmental organizations, academia, community members).

The Institute looks forward to collaborating with organizations worldwide to drive this and other leading practice research in the future.

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We welcome your feedback, thoughts, and suggestions on Campbell Award research at the Institute. Please contact us at campbellinstitute@nsc.org or visit us on the web at thecampbellinstitute.org to learn more and discuss these findings with your peers!

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