U.S. Chemical Safety and Hazard Investigation Board

CSB Best Practice Guidance for Corporate Boards of Directors and Executives in the Offshore Oil and Gas Industry for Major Accident Prevention

Introduction and Background

When a corporation operates in a high-hazard industry, such as offshore drilling and production, its board of directors and executives should ensure that there are effective safety management systems in place to properly manage risks with the goal of preventing major accidents and protecting workers, the public, and the environment. Implementing a robust process safety program is important to a company's overall success and is especially critical to companies operating offshore with a potential for major accidents that threaten the lives of workers as well as catastrophic environmental damage, as seen in the Macondo blowout and explosion. A recent industry report noted, however, that process safety is one of the least discussed topics at corporate board meetings.[1]

Major accidents can interfere with drilling and production operations, damage a company's reputation, and cause significant financial distress. The Center for Chemical Process Safety (CCPS) notes in *The Business Case for Process Safety* that implementing an effective process safety program provides for enhanced risk reduction at a company, which has the following benefits:

- Lives are saved and injuries are reduced
- Property damage costs are reduced
- Business interruptions are reduced
- Loss of market share is reduced
- Litigation costs are reduced
- Incident investigation costs are reduced
- Regulatory penalties are reduced; and
- Regulatory attention is reduced...[2]

In order for companies to avoid major accidents, boards of directors and executives must be equipped with adequate and timely process safety-related information, and at least some members must have adequate levels of relevant education, training, and professional experience to allow them to assess the information they receive in order to evaluate the actions, decisions, and strategies of executive management, and, if necessary, to intervene on behalf of the company through engaged oversight. Boards influence corporate activity at the highest levels, including policies, communications, strategic goals, objectives, mergers and acquisitions, indicators, compensation, and incentive pay programs. These decisions help to shape the corporation's overall culture and the degree to which that culture is focused on safety and major accident prevention.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigated the Macondo Blowout and Explosion (Macondo investigation) and issued the following recommendation to the U.S. Department of the Interior (DOI) who, in turn, assigned it to the Bureau of Safety and Environmental Enforcement (BSEE):

2010-10-I-OS-R7: Drawing upon best available global standards and practices, develop guidance addressing the roles and responsibilities of corporate boards of directors and executives for effective major accident prevention. Among other topics, this standard shall provide specific guidance on how boards and executives could best communicate major accident safety risks to their stakeholders, as well as corporate level strategies to effectively manage those risks.

The CSB believes that BSEE, as the primary offshore federal regulatory agency whose mission is to promote safety and protect the environment, is the best agency to issue the voluntary good practice guidance envisioned in the recommendation. BSEE does not believe they have the statutory authority to implement the recommendation, however, and declined to issue this guidance. The CSB therefore issues this guidance to demonstrate both the importance of such guidance and as a testament that regulatory authority is not required for the issuance of voluntary, good practice guidance.[3]

From the Macondo investigation, the CSB also issued a recommendation to the Sustainability Accounting Standards Board

1 DuPont Sustainable Solutions. *Lack of Internal Alignment and Commitment of Resources to Manage Risk Threaten Corporate Business Performance: Global Survey of Executives Exposes Critical Areas of Concern for CEOs and Their Management Teams*. Figure 5; p 5. Available at https://www.dupont.com/content/dam/dupont/products-and-services/consulting-services-and-process-technologies-redesign/consulting-services-and-process-technologies-landing/documents/Global%20ORM%20Report-20.10.17%20FINAL.pdf.

2 CCPS. *The Business Case for Process Safety, 2nd Edition*. 2006; p 8. Available at https://www.aiche.org/ccps/about/business-case-process-safety-pdf.

3 2010-10-I-OS-R7: Recommendation Status Change Summary.

(SASB), intended to help boards of directors of companies engaged in offshore drilling and production, to raise the visibility of process safety and major accident prevention through effective communication of financial and other risk-related information. As explained in Volume 3 of that report, the SASB is:

> **an independent nonprofit organization whose mission "is to develop and disseminate sustainability accounting standards that help public corporations disclose material, decision-useful information to investors." Part of SASB's mission is to help define materiality of sustainability metrics for determining what information belongs in a company's SEC [Securities and Exchange Commission]-required reports, across numerous industries and sectors. The SASB stated that its work involves "revealing the value of material information about companies' environmental stewardship, social policies and corporate governance," and that its mission is to develop and disseminate sustainability accounting standards that help public corporations disclose material, decision-useful information to investors.**[4]

In the recommendation, the CSB asked the SASB to finalize their then-provisional standard, dated June 2014, governing how companies involved in oil and gas exploration and production activities should communicate corporate performance data.[5] The SASB updated the relevant standards in late 2018. By reviewing the new guidance and ensuring a company's SEC-required disclosures and other communications to shareholders, regulators and the public are done effectively, a company's board of directors can create a "shared understanding of corporate sustainability performance [that] allows companies and investors to make informed decisions that drive value and improve sustainability outcomes."[6]

4 U.S. Chemical Safety and Hazard Investigation Board, Drilling Rig Explosion and Fire at the Macondo Well, Volume 3, p. 224, Report No. 2010-10-I-OS dated April 17, 2016 (internal footnote and citation omitted).

5 U.S. Chemical Safety and Hazard Investigation Board, Drilling Rig Explosion and Fire at the Macondo Well, CSB 2010-10-I-OS-R9, p. 245, Report No. 2010-10-I-OS dated April 17, 2016.

6 U.S. Chemical Safety and Hazard Investigation Board, Drilling Rig Explosion and Fire at the Macondo Well, Volume 3, p. 224, footnote 859, Report No. 2010-10-I-OS dated April 17, 2016; see http://www.sasb.org/sasb/vision-mission/.

Boards of Directors and Executives Roles and Responsibilities

The CSB issues the following guidance for boards of directors and executives in the offshore oil and gas industry:

Boards of directors and executives should:

- Ensure that a robust safety management system is in place that integrates internal safety requirements with regulatory requirements to control major accident hazards and that identifies, prevents, and mitigates identified process safety deficiencies.

- Promote a strong process safety culture. Culture is expressed not only in the stated goals, policies, procedures, and practices that a company formally adopts to enhance process safety, but also in the actual commitment by leaders, management, and the workforce to meet those corporate requirements. Ensure that the company periodically conducts formal assessments of its culture and determine whether there is an effective focus placed on process safety. Assessments should explore the willingness to report incidents and near-misses, the effectiveness of workforce participation efforts, and an evaluation of whether organizational policies and procedures effectively reflect actual work practices.

- Consider adopting a corporate philosophy that encourages the use of inherent safety principles or drives major accident risk to As Low As Reasonably Practicable (ALARP) or a similar risk-reduction target.

- Ensure that at least one of the company's directors has the necessary and relevant education, experience, and training to gather, assess, and communicate important process safety-related information.

- Establish a board champion for process safety who initiates discussion at all board meetings and leads process safety oversight and other initiatives on behalf of the board, which includes:
  - monthly safety briefings at board meetings that focus on process safety;
  - real-time updates on process safety incidents that are occurring;

  - routine personal site visits that emphasize the importance of process safety; and
  - quarterly process safety reviews.

- Develop a process safety policy that is periodically reviewed and revised as necessary and is an integral part of the company's culture, values, and performance standards.

- Ensure the following items are in place:
  - consistent corporate policies;
  - procedures for hazard identification, risk assessment, and controls;
  - clear management structure with established responsibilities;
  - excellent communications with shareholders, regulators, and other stakeholders, as well as timely notifications;
  - established operating procedures, document control measures, and performance indicators;
  - investigations of process safety incidents and near misses, and documentation of findings and corrective actions; and
  - an audit system, management reports and management reviews.

- Communicate process safety policies and their importance as well as the crucial role of workers in risk identification and management.

- Establish strong board visibility, including site visits, presentations, and board-level training initiatives including health and safety training courses, as well as the creation of company-specific programs with an emphasis on process safety.

- Discuss with the CEO and senior management the state of the entity's enterprise risk management (ERM) and provide effective oversight as needed. Ensure the board as a whole is apprised of the most significant process safety risks, along with actions management is taking and how it is ensuring effective ERM.[7]

- Use effective leading and lagging safety indicators to allow for continual monitoring of the company's performance and implemented policies to ensure they take appropriate actions and achieve anticipated results.

- Institute a cross-industry approach to the learning and sharing of lessons from significant process safety incidents.

Effective Communication with Investors, Shareholders, and other Stakeholders

Good communication by the board and executives helps ensure that shareholders receive critical information to hold management and the board accountable for a company's safety performance. Improved corporate transparency creates an additional layer of safety oversight that comes from the informed self-interest of the corporation's shareholders. Good safety practices and oversight then become self-reinforcing as the company's equity owners continually obtain information needed to monitor the boards of companies in which they own shares, and the companies' safety performance measures that are being reported. Transparent reporting, therefore, is essential, and as such:

- Annual reports from boards of directors to investors and shareholders should provide sufficient information relating to the company's process safety performance.

- Boards should effectively communicate process safety performance in the form of leading and lagging safety indicator data that provide sufficient information concerning the safety of their operations, major hazards and related safety issues, and areas for improvement, not solely personnel safety data. Such leading indicators may include overdue inspections and audits; and

- Annual reports should include detailed sections on topics such as risk factors, process safety and operational risks, and environmental and social responsibility.

7 Enterprise risk management is a type of risk assessment and management done by a board at the macro level. it is the process by which a firm determines the major risks it faces and the risk management strategies to face those risks (e.g., acceptance, mitigation, transfer, elimination). According to the leading ERM framework, designed by the Committee of Sponsoring Organizations of the Treadway Commission (COS), ERM "is a process, effected by an entity's board of directors, management and other personnel, applied in strategy settings and across the enterprise, designed to identify potential events that may affect the entity, and manage those risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of the entity objectives." Committee of Sponsoring Organizations. *Enterprise Risk Management – Integrated Framework, Executive Summary;* September 2004, p 2.

Additional Guidance

The following section provides additional guidance for company boards of directors on establishing strong process safety programs, specifically issued by CCPS, BSEE, the United Kingdom (UK) Health and Safety Executive (HSE), the Organisation for Economic Cooperation and Development (OECD), and the UK Chemical Industries Association.[8]

CCPS, The Business Case for Process Safety: Seven steps to achieving business excellence through process safety management:

1. Assign personnel who will be accountable – either a process safety manager or team – for ensuring excellence in pursuing process safety throughout the corporation – re-evaluate your program's effectiveness, estimate your site's process safety return or investment, and communicate it to the employees and the public

2. Adopt a personalized company philosophy of process safety. Use it to establish a management system along the lines of CCPS guidelines and tie it to your company's core values

3. Learn more about process safety by reviewing the literature and other references, attending training provided by process safety professionals, and interacting with other companies – networking with them and participating in industry alliances

4. Take advantage of the strong synergy process safety has with your other business drivers – total quality management (TQM), regulatory requirements, and the American Chemistry Council's Responsible Care® initiative all share common elements

5. Set achievable process safety goals that will support the business case presented here over the next one to five years

6. Track your performance versus goals periodically

7. Revisit your process safety program and modify it every three to five years as needed.[9]

8 The Chemical Industries Association includes primarily chemical and pharmaceutical companies, as well as some drilling services and petrochemical companies, http://www.cia.org.uk/AboutUs/AboutCIA.aspx.

9 CCPS. *The Business Case for Process Safety, 2nd Edition*. 2006; p 13. Available at https://www.aiche.org/ccps/about/business-case-process-safety-pdf.

BSEE. Following the April 2010 Macondo incident, BSEE released its *Safety Culture Policy Statement*, announcing expectations "that individuals and organizations performing or overseeing activities regulated by BSEE establish and maintain a positive safety culture commensurate with the significance of their activities and the nature and complexity of their organizations and functions. The following excerpt is taken from Volume 3 of the CSB Macondo Investigation Report.

BSEE's Safety Culture Policy Statement

According to BSEE, the following characteristics "typify a robust safety culture":†

1. **Leadership Committment to Safety Values and Actions.** Leaders demonstrate a commitment to safety and environmental stewardship in their decisions and behaviors;
2. **Hazard Identification and Risk Management.** Issues potentially impacting safety and environmental stewardship are promptly identified, fully evaluated, and promptly addressed or corrected commensurate with their significance;
3. **Personal Accountability.** All individuals take personal responsibility for process and personal safety, as well as environmental stewardship;
4. **Work Processes.** The process of planning and controlling work activities is implemented so that safety and environmental stewardship are maintained while ensuring the correct equipment for the correct work;
5. **Continuous Improvement.** Opportunities to learn about ways to ensure safety and environmental stewardship are sought out and implemented;
6. **Environmental for Raising Concerns.** A work environment is maintained where personnel feel free to raise safety and environmental concerns without fear of retaliation, intimidation, harrassment, or discrimination;
7. **Effective Safety and Environmental Communication.** Communications maintain a focus on safety and environmental stewardship.
8. **Respectful Work Environment.** Trust and respect permeate the organization with a focus on teamwork and collaboration; and
9. **Inquiring Attitude.** Individuals avoid complacency and continuously consider and review existing conditions and activities in order to identify discrepancies that might result in error or inappropriate action.

†BSEE, Safety Culture Policy Staement, http://www.bsee.gov/Safety/Safety-Culture-Policy/ (accessed October 7, 2015).

The United Kingdom (UK) Health and Safety Executive (HSE)

The UK HSE,[10] a government agency responsible for the encouragement, regulation and enforcement of workplace health, safety and welfare, and for research into occupational risks, published guidance in 2013 on effective leadership of health and safety designed for use by all directors, governors, trustees, and officers in the private and public sectors. The guidance, entitled *Leading health and safety at work*[11] notes that failure to include health and safety as a key business risk in board decision-making can have catastrophic results. Among other topics, the guidance document lists the following essential principles with respect to expectations for board leadership and related activities in the areas of health, safety, sustainability and environmental protection:

1. Strong and active leadership from the top: visible, active commitment from the board; establishing effective 'downward' communication systems and management structures; integrating of good health and safety management with business decisions.

2. Worker involvement through engagement of the workforce in the promotion and achievement of safe and healthy conditions.

3. Assessment and review: identifying and managing health and safety risks; accessing (and following) competent advice; and monitoring, reporting and reviewing performance.

The guidance also sets out a formal agenda for embedding what the UK HSE describes as essential health and safety principles; a summary of legal liabilities; a checklist of key questions for leaders; and a list of resources and references for implementing the guidance.

The UK HSE's stated agenda consists of:

- Core actions for boards and individual board members that relate directly to the legal duties of an organization. These actions are intended to set a standard;

- Guidelines that set out ways to give these core actions practical effect. These guidelines provide ideas on how you might achieve the core actions; and

- Case studies selected to be relevant to most sectors and illustrative of the guidance in action.

The guidance also states that the board should set the direction for effective health and safety management. Board members must establish a health and safety policy that is much more than a document – it should be an integral part of an organization's culture, its values, and its performance standards. All board members should take the lead in ensuring the communication of health and safety responsibilities and benefits throughout the organization. Executive directors must develop policies to avoid health and safety problems and must respond quickly where difficulties arise to prevent new risks from being introduced. Finally, health and safety should appear regularly on the agenda for board meetings. In meeting these responsibilities, boards of directors and Executives can drive health and safety initiatives for the benefit of the company, ensuring good performance in these areas correlate with good business, and creating "significant opportunities" for enhanced overall corporate performance.

The Organisation for Economic Cooperation and Development (OECD)

The OECD is an intergovernmental organization with representatives from 34 industrialized countries in North and South America (including the United States), Europe, and the Asia and Pacific region. The OECD uses the information gleaned from its membership on a broad range of topics to help governments foster prosperity and fight poverty through economic growth and financial stability with a focus on the environmental implications of economic and social development. In June 2012, through its "Environment, Health and Safety Chemical Accidents Program," the OECD published the guidance *Corporate Governance for Process Safety: Guidance for Senior Leaders in High Hazard Industries*. The OECD stated that "Good process safety management needs the active involvement of senior leaders, and it is important that they are visible within their organization, because of the influence

10 According to UK HSE, the agency's mission states: "With roots stretching back to 1833 the modern HSE is an independent regulator with over forty years' experience helping Great Britain work well. Using world leading science we have helped protect millions of people from devastating injury and suffering. . . We concentrate on the most serious risks. We target industries with the greatest hazards, and sectors with the worst risk management record." http://www.hse.gov.uk/aboutus/hse-story.htm Among its many industry sectors, the UK HSE serves, in part, as Britain's offshore regulator, overseeing offshore oil and gas drilling and production through its Energy Division. http://www.hse.gov.uk/offshore/index.htm.

11 Institute of Directors, Health and Safety Executive. *Leading health and safety at work: Actions for directors, board members, business owners, and organisations of all sizes*; INDG417(rev1) June 2013. http://www.hse.gov.uk/pubns/indg417.pdf.

they have on the overall safety and organizational culture."[12] The document outlines a business case in favor of effective process safety management and major accident prevention, and asserts that a growing tide of social responsibility is emerging around the globe, and that regulators, shareholders of companies in high-hazard industries, and citizens alike are all expecting more of business leaders in the modern business environment.[13] Corporate leaders are expected to manage the risks posed by their businesses alongside other critical factors within their businesses, with severe consequences for the failure to do so.[14]

The Chemical Industries Association

The Chemical Industries Association,[15] a trade association representing and advising chemical and pharmaceutical companies located across the UK, has also created guidance for boards of directors in effective process safety leadership within the UK's chemical industry. This guidance includes establishing:

- A board champion for process safety, ensuring discussions at all board meetings to review performance and set priorities;
- Communication of safety policies, stressing the importance set by the board and the role of individuals at all levels in protecting against major hazards;
- Visibility of board-level management (e.g., visiting control rooms, making presentations on major hazard risks, etc.);
- Use of effective leading and lagging safety performance indicators aimed at major accident prevention to allow board-level monitoring;
- Board-endorsed formalized process safety improvements plan for ensuring continuous improvement; and
- Outward-looking approaches taken by the company, and the board itself, including a cross-industry approach to learning and sharing the lessons from incidents.[16]

Additional Resources and Guidance on the Role of Boards of Directors and Executives in Process Safety Management and Major Accident Prevention

At the time the CSB's Macondo investigation report was published, the following resources were available to guide boards of directors engaged with companies:

Chemical Industries Association. *Best Practices Guide: Process Safety Leadership in the Chemicals Industry*; Chemical Industries Association: London, 2008, in Ellis, G. Process Safety Begins in the Board Room. *Chemical Processing*, March 21, 2013, http://www.chemicalprocessing.com/articles/2013/process-safety-begins-in-the-board-room/?show=all.

Committee of Sponsoring Organizations. *Effective Enterprise Risk Oversight: The Role of the Board of Directors*; 2009.

Eves, D.; Gummer, J. *Questioning Performance: Essential Guide to Health, Safety and the Environment*; IOSH Services Ltd: Wigston, United Kingdom, 2011.

Hackitt, Judith. *Why Corporate Governance and Why Now?*, Conference on Corporate Governance for Process Safety, Paris, France, June 14-15, 2012. http://www.hse.gov.uk/aboutus/speeches/transcripts/hackitt140612.htm.

Hopkins, Andrew. *Failure to Learn – The BP Texas City Refinery Disaster*; CCH Australia Limited; 2009.

12 Organisation for Economic Cooperation and Development (OECD). Corporate Governance for Process Safety: OECD Guidance for Senior Leaders in High Hazard Industries; June, 2012; p 9. http://www.oecd.org/chemicalsafety/chemical-accidents/corporate%20governance%20for%20process%20safetycolour%20cover.pdf. Note, some existing guidance is unclear whether a term like "senior leadership" includes the board of directors (including independent directors), or is limited to the executive leadership team, or others further down the management chain. Many best practices in this area apply equally well to all levels of leadership, and some are more particularized; however, it is clear that as one considers the corporate hierarchy, the higher the level of leadership, the more appropriate it becomes to apply a higher scope of duties.

13 OECD. *Corporate Governance for Process Safety: OECD Guidance for Senior Leaders in High Hazard Industries*; June, 2012; pp 8-9. http://www.oecd.org/chemicalsafety/chemical-accidents/corporate%20governance%20for%20process%20safetycolour%20cover.pdf.

14 BP Plc., CEO Bob Dudley recently likened the Macondo blowout to a near-death experience, "Sometimes it takes a near death experience to radically change a company;" US Gulf oil spill nearly ruined BP, says chief Bob Dudley. BBC News, January 2, 2016, http://www.bbc.com/news/uk-35210450.

15 The Chemical Industries Association includes primarily chemical and pharmaceutical companies, as well as some drilling services and petrochemical companies, http://www.cia.org.uk/AboutUs/AboutCIA.aspx.

16 Chemical Industries Association. *Best Practice Guide: Process Safety Leadership in the Chemicals Industry*; Chemical Industries Association: London, 2008, in Ellis, G. Process Safety Begins in the Board Room. Chemical Processing, March 21, 2013, http://www.chemicalprocessing.com/articles/2013/process-safety-begins-in-the-board-room/?show=all.

Institute of Directors, Health and Safety Executive. *Leading Health and Safety at Work: Actions for directors, board members, business owners, and organisations of all sizes*; INDG417(rev1) June 2013. http://www.hse.gov.uk/pubns/indg417.pdf.

Martin Sedgwick & Angela Wands, *The Implementation of Effective Key Performance Indicators to Manage Major Hazard Risks*, testimony presented by Martin Sedgwick Head of Engineering ScottishPower/Iberdrola Group on July 23, 2012 at the CSB's Public Meeting, "CSB Public Meeting: Safety Performance Indicators," https://www.csb.gov/assets/1/20/csb_20public_20hearing.pdf?14811.

Organisation for Economic Co-operation and Development (OECD). *Corporate Governance for Process Safety: OECD Guidance for Senior Leaders in High Hazard Industries*; June 2012. http://www.oecd.org/chemicalsafety/chemical-accidents/corporate%20governance%20for%20process%20safety-colour%20cover.pdf.

Petroleumstilsynet (Petroleum Safety Authority Norway). *Managing the Risk of Major Accidents in Governance Perspective*; http://www.ptil.no/getfile.php/1312086/PDF/REB-TX-17303-tilsyn%20styring%20storulykkesrisiko%20samlerapport-eng%20%28endelig%20versjon%29.pdf.

Reed S. & Fitzgerald A. *In Too Deep*; John Wiley & Sons; 2011.

Royal Commission on the Pike River Coal Mine Tragedy; Wellington, New Zealand, October, 2012; Volume 1: pp 12, 13, 18, Volume 2: pp 46, 50, 5-55. http://pikeriver.royalcommission.govt.nz/vwluResources/Final-Report-Volume-One/$ile/Report-Vol1-whole.pdf and http://pikeriver.royalcommission.govt.nz/vwluResources/Final-Report-Vol2-Part1-only/$file/Report-Vol2-Part1-only.pdf.

Schein, E.H. *Organizational Culture and Leadership*, 4th ed.; Jossey-Bass: San Francisco, CA, 2010, as cited in Ellis, G. Process Safety Begins in the Board Room. Chemical Processing, March 21, 2013, http://www.chemicalprocessinng.com/articles/2013/process-safety-begins-in-the-board-room//?-show=all.

The Baker Panel. *The Report of the BP US Refineries Independent Safety Review Panel*; January 2007. https://www.csb.gov/assets/1/20/baker_panel_report1.pdf?13842.