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**ENVIRONMENT DIRECTORATE
JOINT MEETING OF THE CHEMICALS COMMITTEE AND
THE WORKING PARTY ON CHEMICALS, PESTICIDES AND BIOTECHNOLOGY**

REPORT OF THE CONFERENCE ON CORPORATE GOVERNANCE FOR PROCESS SAFETY (14-15 June 2012, OECD, Paris)

**Series on Chemical Accidents
No. 23**

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OECD Environment, Health and Safety Publications

Series on Chemical Accidents

No. 23

Report of the Conference on Corporate Governance for Process Safety (14-15 June 2012, OECD, Paris)

IOMC

INTER-ORGANIZATION PROGRAMME FOR THE SOUND MANAGEMENT OF CHEMICALS

A cooperative agreement among FAO, ILO, UNDP, UNEP, UNIDO, UNITAR, WHO, World Bank and OECD

Environment Directorate

ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT

Paris 2012

**Other OECD publications related to
Chemical Accident Prevention, Preparedness and Response:**

Report of the OECD Workshop on Strategies for Transporting Dangerous Goods by Road: Safety and Environmental Protection (1993)

Health Aspects of Chemical Accidents: Guidance on Chemical Accident Awareness, Preparedness and Response for Health Professionals and Emergency Responders (1994) [prepared as a joint publication with IPCS, UNEP-IE and WHO-ECEH]

Guidance Concerning Health Aspects of Chemical Accidents. For Use in the Establishment of Programmes and Policies Related to Prevention of, Preparedness for, and Response to Accidents Involving Hazardous Substances (1996)

Report of the OECD Workshop on Small and Medium-sized Enterprises in Relation to Chemical Accident Prevention, Preparedness and Response (1995)

Guidance Concerning Chemical Safety in Port Areas. Guidance for the Establishment of Programmes and Policies Related to Prevention of, Preparedness for, and Response to Accidents Involving Hazardous Substances. Prepared as a Joint Effort of the OECD and the International Maritime Organisation (IMO) (1996)

OECD Series on Chemical Accidents:

No. 1, Report of the OECD Workshop on Risk Assessment and Risk Communication in the Context of Chemical Accident Prevention, Preparedness and Response (1997)

No. 2, Report of the OECD Workshop on Pipelines (Prevention of, Preparation for, and Response to Releases of Hazardous Substances) (1997)

No. 3, International Assistance Activities Related to Chemical Accident Prevention, Preparedness and Response: Follow-up to the Joint OECD and UN/ECE Workshop to Promote Assistance for the Implementation of Chemical Accident Programmes (1997)

No. 4, Report of the OECD Workshop on Human Performance in Chemical Process Safety: Operating Safety in the Context of Chemical Accident Prevention, Preparedness and Response (1999)

No. 5, Report of the OECD Workshop on New Developments in Chemical Emergency Preparedness and Response, Lappeenranta, Finland, November 1998 (2001)

No. 6, Report of the OECD Expert Meeting on Acute Exposure Guideline Levels (AEGs) (2001)

No. 7, Report of the Special Session on Environmental Consequences of Chemical Accidents (2002)

No. 8, Report of the OECD Workshop on Audits and Inspections Related to Chemical Accident, Prevention, Preparedness and Response (2002)

No. 9, Report of the OECD Workshop on Integrated Management of Safety, Health, Environment and Quality, Seoul, Korea, 26 - 29 June 2001 (2002)

Internet Publication, Report of CCPS/OECD Conference and Workshop on Chemical Accidents Investigations (2002)

Special Publication, International Directory of Emergency Response Centres for Chemical Accidents (2002, revision of 1st edition published in 1992)

No. 10, Guiding Principles for Chemical Accident Prevention, Preparedness and Response (2003, revision of the first edition published in 1992)

No. 11, Guidance on Safety Performance Indicators for Industry, Public Authorities and Communities, (2003)

No. 12, Report of the OECD Workshop on Communication Related to Chemical Releases Caused by Deliberate Acts, Rome, Italy, 25-27 June 2003 (2004)

No. 13, Report of the OECD Workshop on Sharing Experience in the Training of Engineers in Risk Management, Montreal, Canada, 21-24 October 2003 (2004)

No. 14, Report of the OECD Workshop on Lessons Learned from Chemical Accidents and Incidents, Karlskoga, Sweden, 21-23 September 2004 (2005)

No. 15, Integrated Management Systems (IMS)-Potential Safety Benefits Achievable from Integrated Management of Safety, Health, Environment and Quality (SHE&Q) (2005)

No. 16, Report of the OECD-EC Workshop on Risk Assessment Practices for Hazardous Substances Involved in Accidental Releases, 16-18 October 2006, Varese, Italy (2007)

No. 17, Report of Survey on the Use of Safety Documents in the Control of Major Accident Hazards (2008)

No. 18, Guidance on Developing Safety Performance Indicators for Public Authorities and Communities/ Public (2008, revision of the first edition published in 2003)

No. 19, Guidance on Developing Safety Performance Indicators for Industry (2008, revision of the first edition published in 2003)

No. 20, Report of the OECD-CCA Workshop on Human Factors in Chemical Accidents and Incidents, 8-9 May 2007, Potsdam, Germany (2008)

No. 21, Report of the OECD Workshop on Safety in Marshalling Yards, 15-16 October 2007, OECD, Paris, France (2008)

No. 22, Addendum to the OECD Guiding Principles for Chemical Accident Prevention, Preparedness and Response (2nd ed.), (2011)

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The Organisation for Economic Co-operation and Development (OECD) is an intergovernmental organisation in which representatives of 34 industrialised countries in North and South America, Europe and the Asia and Pacific region, as well as the European Commission, meet to co-ordinate and harmonise policies, discuss issues of mutual concern, and work together to respond to international problems. Most of the OECD's work is carried out by more than 200 specialised committees and working groups composed of member country delegates. Observers from several countries with special status at the OECD, and from interested international organisations, attend many of the OECD's workshops and other meetings. Committees and working groups are served by the OECD Secretariat, located in Paris, France, which is organised into directorates and divisions.

The Environment, Health and Safety Division publishes free-of-charge documents in eleven different series: **Testing and Assessment; Good Laboratory Practice and Compliance Monitoring; Pesticides; Biocides; Risk Management; Harmonisation of Regulatory Oversight in Biotechnology; Safety of Novel Foods and Feeds; Chemical Accidents; Pollutant Release and Transfer Registers; Emission Scenario Documents;** and **Safety of Manufactured Nanomaterials**. More information about the Environment, Health and Safety Programme and EHS publications is available on the OECD's World Wide Web site (www.oecd.org/ehs/).

This publication was developed in the IOMC context. The contents do not necessarily reflect the views or stated policies of individual IOMC Participating Organizations.

The Inter-Organisation Programme for the Sound Management of Chemicals (IOMC) was established in 1995 following recommendations made by the 1992 UN Conference on Environment and Development to strengthen co-operation and increase international co-ordination in the field of chemical safety. The Participating Organisations are FAO, ILO, UNDP, UNEP, UNIDO, UNITAR, WHO, World Bank and OECD. The purpose of the IOMC is to promote co-ordination of the policies and activities pursued by the Participating Organisations, jointly or separately, to achieve the sound management of chemicals in relation to human health and the environment.

This publication is available electronically, at no charge.

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INTRODUCTION

1. The OECD Programme on Chemical Accidents works to develop guidance on prevention of, preparedness for, and response to chemical accidents. It facilitates the sharing of information and experiences of OECD members, and non-member economies and other stakeholders. The Programme is managed by the Working Group on Chemical Accidents (WGCA).

2. A project on the role of leadership in preventing chemical accidents has been part of the 2009-2012 Programme of Work for the OECD Chemical Accidents Programme. The overall aim of the project is to raise the profile and importance of leadership in preventing major accidents, and in particular to:

- enable OECD and non-member countries to share knowledge and experience in the area concerned;
- identify the benefits of good leadership *versus* the cost of poor leadership;
- discuss lessons learned from recent major accident investigations where leadership failing were implicated in the causes;
- explore how the OECD *Guidance on Developing Safety Performance Indicators* can assist industry to draw up indicators to develop and implement a culture of effective safety leadership; and
- consider whether specific guidance on corporate leadership should be produced and/or a second addendum is needed for the OECD *Guiding Principles for Chemical Accident Prevention, Preparedness and Response* (2003, first Addendum published in 2011).

3. The work started late in 2010 under the auspices of the Working Group on Chemical Accidents (WGCA) with the establishment of a Steering Group on Corporate Leadership (SG-CL). The United Kingdom led the Steering Group and the Netherlands sponsored this project; Mark Hailwood (LUBW, Germany), Chair of the WGCA also chaired the steering group. The SG-CL was composed of representatives of: Germany, Korea, the Netherlands, Sweden, the United Kingdom, the European Commission, The Business and Industry Advisory Committee to OECD (BIAC), the International Council of Chemical Associations (ICCA), and the OECD Secretariat.

4. A sub-group of the SG-CL, including additional experts from industry, developed *Guidance on Corporate Governance for Process Safety (CGPS)* intended for senior leaders in high hazard industries. The *CGPS Guidance* was launched at a Conference held on 14-15 June, 2012 at the OECD in Paris, organised by the SG-CL under the auspices of the Working Group on Chemical Accidents (WGCA). The event was sponsored by the Ministry of Social Affairs and Employment of the Netherlands.

CONFERENCE ON CORPORATE GOVERNANCE FOR PROCESS SAFETY

Objective and Programme

5. The goals of the Conference were not only to launch a set of principles for *Corporate Governance for Process Safety*, but also to affirm the need for commitment from the very highest level

within organisations in order to fulfil those principles. This conference presented an opportunity to exchange views on best practices and make a contribution to a more sustainable and safer industry. The Programme for the *Conference on Corporate Governance for Process Safety* is presented in [Annex 1](#).

Participation

6. The Conference brought together leading representatives from government and industry to explore how good leadership can drive improvements in process safety. There were 67 participants from chemical, petro-chemical, petroleum and energy companies, industry associations and governments of Australia, Canada, Finland, France, Germany, Korea, Netherlands, Norway, Sweden, United Kingdom, and from organisations: the European Commission, UNEP and the OECD. The list of participants is provided in [Annex 2](#).

Guidance on Corporate Governance for Process Safety

7. The document "*Corporate Governance for Process Safety – Guidance for Senior Leaders in High Hazard Industries*", dated June 2012, developed under the support of the WGCA, was available at the Conference in English and French: "*La Gouvernance d'entreprise en matière de sécurité des procédés – Document d'orientation à l'intention des cadres dirigeants des industries à hauts risques*".

8. The aim of the *Guidance on CGPS* is to: (i) raise the profile of process safety governance; (ii) set out the essential elements of corporate governance for process safety; (iii) provide a common framework; (iv) take some of the guesswork out of establishing Corporate Governance Programmes; (v) provide a self-assessment toolkit; and (vi) provide a demonstration of commitment.

9. The *Guidance on CGPS* is intended for: senior leaders; key decision makers; all staff within major hazard organisations so that the policy on corporate governance is clear to everyone; and trade associations and professional bodies to educate and encourage high standards of process safety leadership and corporate governance. The *CGPS Guidance* contains three main chapters: (1) Business case for effective process safety management; (2) Essential elements of corporate governance for process safety; and (3) Self-assessment questions for senior leaders.

10. The essential elements of corporate governance for process safety are five: (i) leadership and culture; (ii) risk awareness; (iii) information; (iv) competence; and (v) action.

11. The self-assessment questions apply at different levels within the organisation, allow to benchmark against others, help identify gaps and develop programmes to address shortfall.

Conclusions and Recommendations from the Conference

12. The Conference discussed the definition of "corporate leadership" and agreed on the following: it is the way in which: (i) major hazards are given the right degree of attention and focus; (ii) there is a systematic approach to risk management; (iii) process safety considerations feature in key business decisions; and (iv) understanding of the major hazard risk and the importance of critical control measures is communicated and championed by senior managers.

13. A top-down approach to corporate governance implies that the leadership starts at the top; it sets the vision and the culture, and influences and directs behaviours and priorities.

14. Several past accidents were reviewed at the Conference and the lessons learned discussed:

- Nypro (UK) Ltd., Flixborough, UK, 1974: Depleted engineering expertise.

- Union Carbide India Limited, Bhopal, India, 1984: Poor maintenance and inadequate process safety competence.
- Esso Australia Ltd., Longford, Victoria, Australia, 1998: Reduced engineering costs and depleted engineering competence during cold start up.
- Hertfordshire Oil Storage Ltd., Buncefield, UK, 2005: Lack of management oversight, poor maintenance and fatigued staff.
- BP Texas City, Texas, USA, 2005: Reduced engineering costs, poor maintenance, fatigued staff and lack of management oversight.

15. Based on these case-studies, the complexity in process safety management was addressed and the following remarks were made:

- Risk control and understanding of control measures are consigned to experts;
- There is a limited knowledge amongst CEOs and senior executives;
- It is difficult to communicate on process safety between the safety experts and senior executives; and
- The budgets are constrained and there is a need to cut costs to stay competitive.

16. It was recognised that guidance in process safety corporate governance is necessary because management decisions and culture set from the top play an essential role in major hazard outcomes. People understand the concept but are not certain on the ingredients or components.

17. The *Guidance on CGPS* allows stakeholders to act now, demonstrates commitment, and engrains process safety management in all business decisions. It also embeds into global Responsible Care Programmes.

18. Major accidents have raised concerns by the public, stakeholders and regulators. The underlying causes are: (i) failure to recognise when things are out of control; (ii) inadequate information on which to base business decisions; (iii) failure to understand the consequences of change; and (iv) failure to manage process safety effectively.

19. A "high reliability organisation" is one that produces its product relatively error free over a long and sustained period of time. The two main attributes of a high reliability organisation are: they have a chronic sense of unease – they lack any sense of complacency; and make strong responses to weak signals – they set their threshold for intervening very long.

20. With respect to process safety integrated roadmap in ScottishPower, the pathway to a high reliability organisation includes the following seven steps:

1. Create a vision strategy: Establish integrated approach and develop business case;
2. Establish leadership: Ensure business buy-in at CEOs and senior leadership level, and establish common level of awareness and understanding;
3. Design operational integrity and process safety management system: Use a structured approach to deliver comprehensive and rigorous analysis of hazards, and risk control systems;

4. Implement foundation for PSMS (Process Safety Management System): Provide initial assessment of process safety performance and kick off cultural change;
5. Integration and automation of PSMS: Move to daily tracking of key performance indicators based on automated feeds, and exploit drill down and trending to drive performance to next level;
6. Review and governance: Establish framework for delivery of sustained performance and improvements, and embed core decision making tool; and
7. Benchmarking and continuous improvement: Maintain sense of vulnerability through learning from others and challenging business as usual.

21. The Conference made the following recommendations with respect to effective process safety management:

- Maintain high visibility on process safety risks and controls;
- Use intelligence to provide assurance that risks are being controlled;
- Focus on vulnerability; and
- Provide resource to the management and control of risks.

22. Safety culture – as shown in the Korean process industry – is composed of four key elements: (i) safety leadership; (ii) mindset and behaviour; (iii) safety organisation; and (iv) safety audits and performance management.

23. In terms of safety culture and leadership improvement, the action oriented safety management involves: (i) ensuring that safety is the first priority of the management; (ii) addressing the safety issues at the beginning of every business meeting; and (iii) publishing the CEOs safety bulletin board frequently. The site specific safety management consists of the following: (i) implementing PSM in all process sites and get feedback; (ii) strengthening supervisor's responsibility – direct report to site manager; and (iii) performing continuous education and certification programme.

24. With respect to safety culture and behaviour and mindset change, safety golden rules must be simple but critical; there will be harsh consequences in case of no-compliance. Mindset implies establishing positive feedback culture, awareness and effective sharing of experience and lessons learned from incident reports. It is important to: (i) implement safety training courses at all levels of hierarchy; and (ii) train experts on incident investigation, and internal safety audit and training.

25. Leaders need to understand risks: (i) major accidents as credible business risks; (ii) the integrated nature of major hazard business/supply chain; and (iii) process safety having equal focus to other business processes.

26. Leaders need to understand the consequences of failure, and actively engage with all levels within the organisation.

Recommendations for further work

27. The Conference made the following recommendations for further work:

1. The implementation of the *Guidance on CGPS* in high hazard industries (chemical, petrochemical, petroleum and energy industries);

2. Initial assessment of the value of the *CGPS Guidance* and appropriate implementation within industries and industry associations. Attendees at the Conference agreed to report back to the OECD Secretariat within one year on experience and implementation of the Guidance.
3. Development of indicators to measure the progress / success of the implementation.

ANNEX 1

PROGRAMME

Conference on Corporate Governance for Process Safety

14 – 15 June 2012, OECD Headquarters, Paris, France

Thursday, 14 June 2012

19:00 Buffet Reception

Opening Remarks:

Ambassador Edmond H. Wellenstein

Permanent Representative of The Netherlands to the OECD

Keynote Speaker:

Andrew Hopkins

Emeritus Professor of Sociology, Australian National University
Corporate Leadership “Thinking the Unthinkable”

Friday, 15 June 2012

09:00 Welcome

Deputy Secretary-General Rintaro Tamaki

OECD Secretariat

09:15 Introduction: Why Corporate Governance and Why Now

Judith Hackitt

Chair Health and Safety Executive (HSE), United Kingdom

President-elect of the Institution of Chemical Engineers (IChemE) for 2013-2014

drs **Roel Gans**

Director of Health and Safety at Work,

Ministry of Social Affairs and Employment, The Netherlands

Ben van Beurden

Executive Vice President Chemicals
Royal Dutch Shell, United Kingdom

10:30 – 11:00 Coffee Break**11:00 Presentation of the Guidance: Corporate Governance for Process Safety Questions & Answers**

Ian Travers, Head of Chemical Industries Strategy Unit
Hazardous Installations Directorate, Health & Safety Executive, United Kingdom

Peter Cartwright, Vice President, Environment, Health and Safety
Dow Corning, United Kingdom

William Garcia, Executive Director – Energy, HSE and Logistics
CEFIC (European Chemical Industry Council), Belgium

12:30 – 14:00 Lunch**14:00 Sharing Experience – Governance, Performance, Culture**

Ron Hunter, Technical Services Director, ScottishPower, United Kingdom

Martin Sedgwick, Head of Engineering, ScottishPower, United Kingdom
Process Safety Governance at ScottishPower

Jean-Marc Jaubert, Directeur de la Sécurité industrielle Groupe, Total SA, France
HSE Performance Recognition Policy

Dong Sub Kim, President, Global Technology, SK Innovation, Korea
Safety Culture and Reliability of Korean Process Industry

15:30 - 16:00 Coffee Break**16:00 Podium Discussion: Moving On**

- Issues:
- Industry-wide Commitment
 - Sustainable Corporate Governance
 - Industrialising and Developing Countries
 - SMEs

17:00 Closing Statements**OECD Secretariat**

Peter Cartwright, ICCA (International Council of Chemistry Associations)

ANNEX 2

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