HSE: the long and winding road towards zero incidents
HSE: Investment *with* peace of mind

The average estimated cost of accidents or occupational disease to employers (HSE, 2006)

<table>
<thead>
<tr>
<th>Type of consequence</th>
<th>Human Cost</th>
<th>Lost Output</th>
<th>Resource Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatality</td>
<td>£ 991 200,00</td>
<td>£ 520 700,00</td>
<td>£ 900,00</td>
<td>£ 1 500,00</td>
</tr>
<tr>
<td>Major Injury</td>
<td>£ 18 400,00</td>
<td>£ 16 200,00</td>
<td>£ 5 200,00</td>
<td>£ 40 500,00</td>
</tr>
<tr>
<td>Other Reportable Injury</td>
<td>£ 2 700,00</td>
<td>£ 2 600,00</td>
<td>£ 500,00</td>
<td>£ 5 800,00</td>
</tr>
<tr>
<td>Minor Injury</td>
<td>£ 200,00</td>
<td>£ 100,00</td>
<td>£ 50,00</td>
<td>£ 350,00</td>
</tr>
<tr>
<td>Average case of ill health</td>
<td>£ 5 800,00</td>
<td>£ 2 300,00</td>
<td>£ 800,00</td>
<td>£ 8 900,00</td>
</tr>
</tbody>
</table>

Borealis at a glance

- 2nd largest polyolefin producer in Europe
- Borouge operates world’s largest integrated PO site in Ruwais, UAE
- 6,600 employees
- EUR 7.2 billion sales revenue in 2016 (>EUR 8.8 billion with Borouge)
- Operates in over 120 countries on 5 continents
- Head office in Vienna, Austria
- EUR 1.1 billion net profit for 2016
- Production and sales of polyolefins, base chemicals and fertilizers
- Ownership structure: Mubadala, UAE (64%) and OMV, Austria (36%)
Borealis safety performance over the years

1. Tone from the top

2. Group wide Management System

3. Step change in Safety Program: Observation tours

4. Contractor Management

Do better with what we have

Borealis Doubles in size

TRI total  TRI Own  TRI Contractors

Goal Zero Journey
Creating the right mindset

HSE is the long and winding road towards zero incidents

Ever longer intervals between accidents and incidents

Invest in systems and compliance

Invest in people and resilience

Invest in peer to peer leadership

Increasingly informed

Increasing Trust/Accountability

Hudson Maturity Model – prof Patrick Hudson
Invest in systems

Digitalisation & Integration
- Shift logbook
- Workorder & Planning
- Permit system
- Field checklist

Information and Assurance

Organisation & collaboration

Pillars of Process Safety
- Keep the hazard contained and controlled safely!
- Knowledge of the main PS-risks
  - Introducing Change
  - Permit to work
  - Safe Start-up / SD
  - Safety Critical Systems

HSE  the long and winding road towards zero incidents
Invest in people

Front Line Leader Curriculum
Middle Manager Curriculum

Understanding Behaviour
Conscious Mind
Unconscious Mind

Human factors in Design

Engage the unconscious

Video still "Land of Confusion" Genesis 1986- Pinterest
Invest in Leadership

Set Expectations

Showing Your Care

Create a sense of urgency

Do regular checks

Engage both the conscious and unconscious

Assurance elements - examples

- External Audits (EA)
  - Self-assessments
  - OPS internal audits
  - T&A and project reviews
  - Trend checks, etc.
- Internal Audits (IA)
  - Internal health-checks (IMC)
- Assurance
  - Internal audits
  - Blue audits
  - Quality audits, etc.

Engagement

- Engagement walks
- Deep dives
- Go and see
- Bad actor reviews
- Leader standard work
„The secret to success is constancy to purpose“
Mark Garrett

„A true safety culture is not just about individuals behaving safely, it is about individuals that care that everyone is behaving safely“
Martijn van Koten
Thank you

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