The Value Proposition for the Industrial Hygienist

by

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The Unspoken Question

- What good is all the “stuff” anyway?

  Mr. D. B., Plant Maintenance Planning Supv.
IH Costs Money

- IH Costs Known
  - Salary, Benefits
  - Equip
  - Sampling
  - Analysis
  - Continuing Education (AIHce)

- Goal: Communicate IH Value, it’s Difficult to Identify and Express
Objectives

- Discuss a facility based approach to communicate the alignment of industrial hygiene with business values

- Discuss use of exposure assessment and monitoring to add value
Who Is Your Audience?

- Shareholders
- Corporate
  - Facility Management
    - Operations Mgr
    - EHS Management
    - Maintenance Mgr
      - Safety
      - Industrial Hygiene
      - Environmental
    - Corp IH
I H Cost and Value

- Corporate
- Plant Manager
- Operations
- Industrial Hygiene & Safety

Valero Energy Corporation and Weston Solutions, Inc.
Traditional Measures of Value

- Shareholder return
- Alignment w/ core values and business objectives
- Compliance
- Risk Management
- Cost Containment
- Community Relations
Facility Value

- Management focus is:
  - Short term
  - Profit driven
  - Budget control

- IH adds value through “quality” exposure assessments and recommendations consistent with management goals
Facility Value Approach

Elements

- Exposure Assessment to optimize recommendations
- Increase Productivity of Personnel
- Improve Equipment Reliability
- Return on Investment (ROI)
- Link and implement both the facility and corporate goals
Exposure Assessment to Optimize Recommendations

- Statistical analysis adds confidence and authority to IH recommendations
  - Training requirements
  - Medical monitoring
  - Control recommendations and priorities
  - Future sampling needs

- Uses the AIHA “A Strategy for Assessing and Managing Occupational Exposures”
IHStat says...

Data analysis and conclusion:

- SEG 1: Carpenters installing scaffolding in a confined space containing chromium refractory brick

- SEG 2: BM’s removing Chrome Refractory in Gasifier
### IHStat says...

<table>
<thead>
<tr>
<th>Task</th>
<th>Stressor</th>
<th>Time Weighted Average Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of Samples</td>
</tr>
<tr>
<td>Building Scaffolding</td>
<td>Total Particulate</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Chrome VI</td>
<td>6</td>
</tr>
<tr>
<td>Demolition</td>
<td>Total Particulate</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Chrome VI</td>
<td>6</td>
</tr>
</tbody>
</table>

OELs - Total Particulates: 10 mg/m³; Chrome VI: 5 ug/m³
Bayesian Statistics says...

Data analysis and conclusion:
- SEG 1: Boilermakers (BM) chipping refractory in FCCU
- SEG 2: BM SMAW 316SS in FCCU
- SEG 3: BM SMAW Inconel in FCCU
- SEG 4: BM GTAW SS in Shop w/o Vent
- SEG 5: BM GTAW SS in Shop w/ Vent
## Bayesian Analysis Shows

<table>
<thead>
<tr>
<th>Activity</th>
<th>Exposure Levels</th>
<th>PPE Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>BM Chipping CS</td>
<td>10x - 50x OEL</td>
<td>PPE: Full face APR</td>
</tr>
<tr>
<td>BM SMAW 316 SS CS</td>
<td>1.4% &gt; OEL, 8.6% &gt; AL</td>
<td>PPE: ½ Mask</td>
</tr>
<tr>
<td>BM SMAW Inconel CS</td>
<td>36% &gt; OEL, 0% &gt; 10x OEL</td>
<td>PPE: ½ Mask</td>
</tr>
<tr>
<td>GTAW in Shop w/o Vent</td>
<td>6.5% &gt; OEL, 16% &gt; AL</td>
<td>PPE: ½ Mask</td>
</tr>
<tr>
<td>GTAW in Shop w/ Vent</td>
<td>0% &gt; OEL</td>
<td>PPE: Not Req.</td>
</tr>
</tbody>
</table>
Increased Productivity

■ 4 Examples
  - Preventing unnecessary evacuations
    ■ Telemetric and personal (PBZ) air monitoring
    ■ Evacuation for personal or adjacent alarms
    ■ Changes in confined space
  - Efficient re-permitting of space
  - Preventing Thermal Stress
  - Preventing pseudo-colds
Equipment Reliability

- Temporary telemetric air monitoring
  - Set up monitors confined space
    - found CO and Oxygen increasing
    - Increase purge gas – stopping oxidation
  - Recommend the right engineering controls the first time. Evaluate performance and maintenance.
Field Value

- ROI
  - Own or Rent equipment
  - Recycling respirators saves money
  - Focused training, medical monitoring
Did We Show Added Value?

- Traditional Measures of Value
- Field Value Approach
  - Statistical analysis optimizes
    - Control recommendations
    - Sampling strategy
  - Maintenance productivity
  - Equip reliability, prevent equip damage
  - ROI
  - Link corporate and facility goals
Communicate Value

- Make sure to communicate what you’ve done and how it’s added value?
  - Supervision
  - Management
- If successful, you’ll be invited to the party!
Objectives

- Discuss a facility based approach to communicate the alignment of industrial hygiene and business value.

- Discuss use of exposure assessment and monitoring to add value.
Questions