Shelly, Twinsburg
Risk Reduction
Project:
Night Work

Sustainable Risk Reduction Potential for Night Work
Shelly, Twinsburg
Risk Reduction
Project:
Night Work
(The Safest Way)
In traditional Chinese, risk is expressed with two characters; one representing danger and the other opportunity.

- There is danger in everything we do
- This fact creates opportunity...

Damodaran, Value & Risk: Beyond Betas; 2003

Sustainable Risk Reduction Potential for Night Work
Exploiting the Opportunity...

- Depends on *identifying* sources of uncertainty and *targeting* those that are *actionable*
- Begins with the fostering of *creative tension*...
Creative Tension...

• Comes when a gap is recognized between what the organization wants to be (vision) and what it is (reality)

• Is resolved in one of two ways:
  – Adjusting the vision to meet the reality
    • (Aspiring to the mean)
  – Adjusting the reality to meet the vision
    • (Aspiring to excellence)
Organizations that relentlessly adjust their reality to meet their vision are known as World Class...
We seek to be known as World Class when it comes to Night Work, especially as it relates to our business growth.
We Are:

Sustainable Risk Reduction Potential for Night Work
Our Vision:

Reflect and Illuminate

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Webster on Reflection

• To throw back or bend light from a surface
• To think seriously...
Webster on Illumination

- To provide or brighten with lights
- To make understandable; clarity
- To provide *intellectual or spiritual enlightenment and understanding*...
We have identified those sources of uncertainty and have targeted those that are most actionable.
A few examples...
Our equipment didn’t anticipate night work; we can’t be seen, or see, well
We look like every other stationary object on our night sites.
We do critical jobs at our plants and on site that are risky without adequate lighting at night.
Our plants are not engineered for consistent night illumination or reflection.
Hazards easily seen during the day, drive accidents in the night

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Simply put, what we see and how we are seen during the day...

Does not serve us well at night!

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Our charge: create a map that will reduce risk in an area that matters — so that it stays reduced locally and nationally.
We Got To That Through This:

**Frequency Scale** (How often the work activity is performed)

1. The activity is performed less than once per week
2. The activity is performed less than once per shift or day
3. The activity is performed more than once per shift or day
4. The activity is performed more than once per hour
5. The activity is performed at all times

**Likelihood Scale** (The chance the event of concern will occur)

1. Highly Unlikely
2. Unlikely
3. Possible
4. Probable
5. Highly Likely

**Severity Scale** (The plausible degree of harm from the event of concern)

1. Injuries are likely to involve first aid only with no lost time from work
2. Injuries are likely to involve medical treatment, but no lost time from work
3. Injuries are likely to involve medical treatment and lost time from work, but with full recovery
4. Injuries are likely to involve medical treatment, time lost from work, and some permanent impairment
5. Injuries are likely to involve major permanent impairment, or death

**Sustainable Risk Reduction Potential for Night Work**
# Sustainable Risk Reduction Potential for Night Work

## Then This:

<table>
<thead>
<tr>
<th>Concerns (Injury + Event + Causation, e.g. Head injury from falling from ladder when foot slipped)</th>
<th>Frequency (Rate Frequency of Exposure)</th>
<th>Likelihood (Rate Likelihood of Concern)</th>
<th>Severity (Rate Severity of Concern)</th>
<th>Relative Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falls from no illumination for fixed routine tasks (fueling, greasing, etc.)</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Falls from no illumination for dynamic walking surfaces (erosion, ruts, etc.)</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>Contact with overhead wires while moving equipment in poor lighting</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>Falls from poor illumination of exposed castings or planed surface edges</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Falls outside work site from inability to accurately judge ground conditions</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>9</td>
</tr>
</tbody>
</table>

**Risk Index**: 181
Safety Program Improvement Partnership

Sustainable Risk Reduction Potential for Night Work

Falls from no illumination for fixed routine tasks (fueling, greasing, etc.)
Falls from no illumination for dynamic walking surfaces (erosion, ruts, etc.)
Contact with overhead wires while moving equipment in poor lighting
Falls from poor illumination of exposed castings or planed surface edges
Falls outside work site from inability to accurately judge ground conditions

Relative Risk Rating

To Produce This:

Performance Leadership Summary
Shelly Company, Twinsburg, OH
Illuminate Site Hazards

Summary

Illuminate Site Hazards

To Produce This:
To organize our risk analysis, we identified 8 logical, balanced sources of risk from night work:
We experience risk when we don’t have good reflection for our people, our equipment, our traffic control or our site hazards.

Sustainable Risk Reduction Potential for Night Work
And, we experience risk when we don’t have good illumination for our people, our equipment, our traffic control or our site hazards.
All told, we identified 30 “unique to night work ways” for one of ours to get hurt.
Using our F-L-S methodology, our baseline relative risk score for risk unique to our night work is **828**
How significant is this?
From a Business Perspective:

- In 2004, we produced 30% of our asphalt at night
- In 2005, we produced 47% of our asphalt at night
- In 2006, we produced 60% of our asphalt at night
- All told, we’ve doubled our night asphalt business in three years; it’s our future
From a Resource Perspective:

- In 2004, we had 3 night projects
- In 2005, we had 3 night projects
- In 2006, we had 11 night projects
- All told, that’s 40% of our work force that has migrated to night work; it’s our future
From a Safety Perspective:

- We each went into the field to observe natural behavior and create current baselines.
- We found a general lack of uniformity and understanding of what needs to be done for night work.
That Risk Exists Because ...

Environment

Our system never really changed to consider significant growth in night work
We believe our company can cut its’ relative risk for night work by 39% if we as a company accept and support our vision and recommendations.
Recommendations for Reflection

• Assemble and distribute a standardized night flagger kit
  – Necessary PPE
  – Reflective gear
  – Laminated “tool box talk”
  – Provide training on purpose, use, maintenance and replacement
  – Update flagger training
  – Implement a kit swap out program
Recommendations for Reflection

- Standardize and provide (lime yellow) reflective rain gear
- Equip mechanics and plant workers with reflective tear away vests
- Distinguish workers from fixed objects with standardized reflective tape on all hard hats and reflective bands for wrists and ankles as appropriate
Recommendations for Reflection

- Incorporate different color cones in traffic control to delineate exits
- Include “reflect and illuminate” standards on pre-trip inspections and direct work to the shop for better control
- Incorporate reflectivity standards into sign maintenance (cleaning), demarcation and replacement

Sustainable Risk Reduction Potential for Night Work
Recommendations for Reflection

• Improve visibility of access/egress at plants (stairs, walkways, and handrails)

• Improve visibility of access/egress on rolling stock (stairs, walkways, and handrails)

• Highlight equipment profiles with standardized reflective tape placement and Shelly emblems
Recommendations for Reflection

• Reflect fixed hazards (bridge conveyors as an example)
• Encourage regular use of light colored clothing (painter’s pants as an example)
Recommendations for Illumination

- Phase in engineered lighting plans for facilities using baseline risk profiles
- Provide access/egress lighting on all mobile equipment
- Equip the night workforce with LED miner lights
  - Provide training on purpose, use, maintenance and replacement
Recommendations for Illumination

• Assemble and distribute a standardized worker safety kit
  – Anticipate all aspects of night work
  – Include “red flashing ball”
  – Laminated “tool box talk” and critical behavior self-checklist
  – Provide training on purpose, use, maintenance and replacement
  – Update all relevant training
  – Implement a kit swap out program
Recommendations for Illumination

- Equip flaggers with personal balloon lighting
- Provide light wands for consistent communication when dumping trucks
- Install clearance lamps on paver wings
- Provide magnetic area lighting for equipment
Recommendations for Illumination

- Equip trucks with handheld “police style” spotlights (mounted and hand held as appropriate)
- Anticipate and light staging areas and designated parking areas
- Designate and light clean-out areas for haul trucks
Supporting Recommendations

- Examine night work scheduling from an exposure point of view (Sunday nights versus Friday nights as an example)
- Pilot additional “rolling foot candles”
- Review all policies and SOPs to assure consistency with “reflect and illuminate” recommendations
Supporting Recommendations

• Create a “transition to night work” training unit supported by research and lessons learned from other industries
• Provide training and integrate “reflect and illuminate” standards into bid and preplanning activities
• Identify and manage a “night work hierarchy”
Supporting Recommendations

• Orient TRACK for an early season “reflect and illuminate burn-in”
  – Publish transferable ideas and best practices in newsletter
  – Celebrate early “reflect and illuminate” successes for individuals and crews
  – Needs to be proportionate to our night work levels
Supporting Recommendations

- Charge a cross-functional team with creating a “coach and appreciate” process to advance reflect and illuminate behaviors
  - Reflective logo stickers for hard hats
  - Include “penny pitch” exercise in management training
  - Start 2007 season with “track-like” observations for management
Supporting Recommendations

- Share safety and production updates
  - Expand the daily call-in report to include safety performance
- Produce and share night equipment status reports
Using our risk reduction blueprint, our new risk score for risk unique to our night work is 504.
That’s an overall risk reduction for night work of 39%
And, Instead of This

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We Have This:

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So, what else is needed?
Doesn’t it make sense that those closest to the risk have the most to say about it?
Here’s what we think...
What about you?