Managing Safety to Zero
A Definitive Application for Incident Reduction

dependability, expertise, and safety

Brad Dunker
NWCCC – October 1, 2009
MS20 Program Outline

- Leading Indicator History
- What is MS20?
- Program Components
- Field and Software Mechanics
- Sample Reports
- Incident Reduction Model
- Results
Leading Indicator History

- 2002 Resurrection of Leading Indicators
- Safety Fundamentals Flaw Recognized
- Fundamentals and CII Best Practices Link
- Idea how to measure what we now know
- Managing Safety to Zero created
CII Nine Industry Best Practices ’01

- Demonstrated Management Commitment
- Staffing for safety
- Safety Planning
- Safety training and education
- Worker participation and involvement
- Recognition and rewards
- Subcontractor management
- Accident/incident reporting and investigations
- Drug and alcohol testing
What is MS20?

- Proactive HSE Management Program
  - Aligns with CII’s Best Practices
- Total site engagement tool
  - Management, Supervision & Craft
- A quantifiable & measurable means of HSE performance
- Tracks, Measures and Trends
  - Leading indicators
  - Conventional lagging indicators
  - Multiple Reports Capability
- Web-based Application
  - Fluor Intranet application
  - Centralized secured database
  - Real time data
  - Global: Canada, Mexico, Europe, Middle East
Iceberg Approaches

1 SERIOUS INJURY
10 MINOR INJURIES
30 PROPERTY DAMAGE
600 INCIDENTS
2,500 NEAR MISSES
40,000 UNSAFE ACTS

REACTIVE
Safety Management

PROACTIVE
Accident Prevention Approach
MS20 Program Components

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Program Components

- “SAPS” Audits (LI)
- “SLIM” Metrics (LI)
- “SPS” Surveys (LI)
- Conventional Indicators (Lag)
I. SAPS Audits

“SAPS” - Safety Audit Performance System

- Daily observation audit process
- Focuses on unsafe acts, conditions and root causes of each.
- Quantifiable & Measurable
  - Probability and severity of observations
  - More consistent focused approach
  - Hazard coding
  - Objectively driven – weighting predetermined
  - Target Goals
<table>
<thead>
<tr>
<th>Projects utilizing Managing Safety to Zero in BLUE</th>
<th>Average Audit Score YTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects without recordables</td>
<td>96.10</td>
</tr>
<tr>
<td>Projects with recordables meeting or achieving corporate TCIR goals</td>
<td>97.60</td>
</tr>
<tr>
<td>Intervention Target</td>
<td>95%</td>
</tr>
<tr>
<td>Projects not meeting corporate TCIR goals</td>
<td>92.60</td>
</tr>
</tbody>
</table>
II. SLIM Metrics

“SLIM” – Safety Leading Indicator Metrics

- Quantifiable and measurable against established goals.
- Shows the level of proactive activity put forth
- Identifies intervention need

- Seven key indicators
  - Hazards Eliminated
  - Safety Task Assignments
  - Near Miss Incidents
  - Adopt-a-Crew engagement
  - Management Walk-Abouts
  - Weekly Assessments
  - Training
SLIM Scoring – “Below Zero is GOOD!

Positive Participation in Programs

Intervention Needed

Recordable Incident Occurred
III. SPS Surveys

“SPS” - Safety Perception Surveys

- A 25-question safety perception survey with 7 Categories:
  - Training
  - Communication
  - Rules & Procedures
  - Work Environment
  - Safety Promotion
  - Management
  - Individual safety along with comment section

- Survey objective – 10% of field typically

- Results charted & analyzed

- Conducted Quarterly
IV. Conventional Metrics

Key Performance Indicators – KPI

KPI is a multi-purpose component that includes a repository base for:

- Incidents
- Injury Statistics
- New Employee Development Program
Program Mechanics

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Training
- Orientation and site specific
- Mechanics, R&Rs, Accountabilities, Understanding reports

Management in Action
- Formal program schedules developed
- Adopt a Crew / Pre job planning engagement daily
- Site Manager & HSE Manager audit walkabouts weekly

Supervision Involvement
- Weekly assessments of first Line & crew by GF
- First line Safety Task Assignments completion and quality
- Simple tools provided
Field Mechanics

- Craft Participation
  - Hazard Elimination (H.EL.P. Cards)
  - Committee driven
  - Incentivized
  - Near Miss reporting

- Safety Department SAPS Audits
  - Daily temperature of current performance
  - Litmus test of MS20 elements

- Field Survey
  - What’s working or not working
  - Management to make effective change

- Training
  - Where we fall short
Software Mechanics

- Field data collected
  - Centralized collection points for field drop off
  - All data organized

- Data input by Input Agent(s)
  - Quantity input
  - Weekly basis

- Reports and trends generated

- Multiple Level Reviews
  - Local (site team and client)
  - Regional
  - Corporate

- Actions taken

- Cycle back to field mechanics
Sample Reports

dependability, expertise, and safety
Reports - SAPS

Weekly SAPS Summary
06/14/2008 to 06/20/2008

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>000001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Name:</td>
<td>Testing</td>
</tr>
</tbody>
</table>

**Daily observations for week**

- **Employees on Site:** 338
- **Employees Observed:** 467
- **MTD Hours:** 49,976
- **YTD Hours:** 207,714
- **PTD Hours:** 207,714

**Acts & conditions**

- **Unsafe Conditions Reported:** 18
- **Unsafe Acts Reported:** 3
- **Total Unsafe Conditions / Unsafe Acts Reported:** 21
- **Total Points:** 14.8
- **Outstanding Action Items for this week:** 0

**Scoring**

- **Compliance Frequency Index:**
  - Goal: 95%
  - Actual: 95.5%
  - Compliance: 95.5%
- **Compliance Severity Index:**
  - Goal: 1.0
  - Actual: 0.7
Top 10 Recurring Violations

- Face Protection
- Electrical Tools/Cords
- Around Equipment/Material
- General Trash
- No Gloves - Labor
- Body Protection
- Equipment/Mat/Scaffolding
- Eye Protection
- Hearing Protection
- Inadequate Procedures
Top 10 Root Causes of Violations

- Inattention
- Failure to Recognize
- Inspection Process
- Enforcement
- Willful Neglect Employ...
- Management Controls
- Work Direction
- Training
- Work Environment
- Procedure

Number of Violations
The safety orientation given to new construction employees provides adequate information to start work.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>N/A</th>
<th>Replies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>702</td>
<td>91.05%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Negative</td>
<td>64</td>
<td>8.00%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>5</td>
<td>1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Additional safety training for specific tasks (confined space, man lift, and scaffold etc.) is completed prior to the need.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>N/A</th>
<th>Replies</th>
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<tbody>
<tr>
<td>294</td>
<td>392</td>
<td>33</td>
<td>29</td>
<td>9</td>
<td>14</td>
<td>771</td>
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</tbody>
</table>

Positive Responses | % Positive
---|---
686 | 88.98%

Negative Responses | % Negative
---|---
71 | 9.21%

N/A Responses | % N/A
---|---
14 | 1.82%
Weekly KPI Summary

08/15/2009 to 08/21/2009

**Project Number:** 000000001  
**Project Name:** Company C

### Project Statistics

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluor Employees:</td>
<td>307</td>
</tr>
<tr>
<td>Subcontractors:</td>
<td>1,724</td>
</tr>
<tr>
<td>Weekly Hours:</td>
<td>155,027</td>
</tr>
<tr>
<td>MTD Hours:</td>
<td>304,803</td>
</tr>
</tbody>
</table>

### Recordable Incident Statistics

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Treatment Cases:</td>
<td>0</td>
</tr>
<tr>
<td>Restricted Workday Cases:</td>
<td>0</td>
</tr>
<tr>
<td>Lost Workday Cases:</td>
<td>0</td>
</tr>
</tbody>
</table>

### New Employee Development Program

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Hires this Week:</td>
<td>22</td>
</tr>
<tr>
<td>Mentors Assigned this Week:</td>
<td>2</td>
</tr>
<tr>
<td>NEDP Evaluations Submitted:</td>
<td>19</td>
</tr>
</tbody>
</table>

### Additional Trailing Statistics

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>First Aid Cases:</td>
<td>3</td>
</tr>
<tr>
<td>Vehicle/Equipment Cases:</td>
<td>0</td>
</tr>
</tbody>
</table>

### Subcontractor Employee Training

<table>
<thead>
<tr>
<th>Training</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerial Lift (Scissor Lift)</td>
<td>10</td>
</tr>
<tr>
<td>Back Safety</td>
<td>14</td>
</tr>
<tr>
<td>Client Orientation</td>
<td>9</td>
</tr>
<tr>
<td>Confined Space/Enclosed Space</td>
<td>90</td>
</tr>
<tr>
<td>Crane Safety Awareness</td>
<td>3</td>
</tr>
<tr>
<td>Defensive Driving</td>
<td>37</td>
</tr>
<tr>
<td>Electrical/Live Voltage Safety</td>
<td>14</td>
</tr>
<tr>
<td>Emergency Evacuation</td>
<td>590</td>
</tr>
<tr>
<td>Equipment Flag Person/Spotter</td>
<td>16</td>
</tr>
<tr>
<td>Eye Protection Training</td>
<td>27</td>
</tr>
<tr>
<td>Fall Protection</td>
<td>0</td>
</tr>
<tr>
<td>Fire Watch</td>
<td>57</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>188</td>
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</table>

### Incident Types

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Eye(s)</td>
<td>Inflammation</td>
</tr>
<tr>
<td>Multiple Body Parts</td>
<td>Other</td>
</tr>
<tr>
<td>Thigh</td>
<td>Abrasion</td>
</tr>
</tbody>
</table>
Systematic Approach
“Incident Reduction Model”
dependability, expertise, and safety
## Project Performance Report Card

### August

<table>
<thead>
<tr>
<th>Date</th>
<th>Company 1</th>
<th>Company 2</th>
<th>Company 3</th>
<th>Company 4</th>
<th>Weekly Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/7/2009</td>
<td>B</td>
<td>C</td>
<td>C</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>8/14/2009</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>8/21/2009</td>
<td>A</td>
<td>B</td>
<td>D</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>8/28/2009</td>
<td>B</td>
<td>A</td>
<td>C</td>
<td>B</td>
<td>C</td>
</tr>
</tbody>
</table>

### Monthly Average

<table>
<thead>
<tr>
<th></th>
<th>Company 1</th>
<th>Company 2</th>
<th>Company 3</th>
<th>Company 4</th>
<th>Weekly Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>B</td>
<td>B</td>
</tr>
</tbody>
</table>

### September

<table>
<thead>
<tr>
<th>Date</th>
<th>Company 1</th>
<th>Company 2</th>
<th>Company 3</th>
<th>Company 4</th>
<th>Weekly Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/4/2009</td>
<td>A</td>
<td>B</td>
<td>D</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>9/11/2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9/18/2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9/25/2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Monthly Average

<table>
<thead>
<tr>
<th></th>
<th>Company 1</th>
<th>Company 2</th>
<th>Company 3</th>
<th>Company 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**WHY?**
## Level 2 - LI Performance Card

### Leading Indicator Performance Card

<table>
<thead>
<tr>
<th>Week Ending 8/21/09</th>
<th>Company 1</th>
<th>Company 2</th>
<th>Company 3</th>
<th>Company 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAPS - Compliance Frequency Index (CFI)</td>
<td>B</td>
<td>B</td>
<td>D</td>
<td>B</td>
</tr>
<tr>
<td>SAPS - Compliance Severity Index (CSI)</td>
<td>A</td>
<td>B</td>
<td>F</td>
<td>A</td>
</tr>
<tr>
<td>SLIM - Safety Leading Indicator Metrics</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td>SPS - Safety Perception Survey</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>B</td>
</tr>
</tbody>
</table>

### Performance by Company

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>D</th>
<th>B</th>
</tr>
</thead>
</table>

### Performance by Component

- B
- B
- C
- B

---

**WHY?**

---

**Overall**

- B
### Level 3 - Performance Details

**Weekly SAPS Summary**

08/15/2009 to 08/21/2009

<table>
<thead>
<tr>
<th>Project Number:</th>
<th>00000001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Name:</td>
<td>Company C</td>
</tr>
</tbody>
</table>

**Project Statistics**

- Employees on Site: 178
- Employees Observed: 217
- MTD Hours: 27,018
- YTD Hours: 145,354
- PTD Hours: 257,758

**Leading Indicators**

- Unsafe Conditions Reported: 14
- Unsafe Acts Reported: 6
- Total Unsafe Conditions / Unsafe Acts Reported: 20

**Scoring**

- Compliance Frequency Index: Goal: 95+  
  Actual: **74.2**  
  Compliancy: **74.2%**
- Compliance Severity Index: Goal: 1.0  
  Actual: **1.5**
Top 10 Recurring Violations

Number of Violations

- Rigging: 5
- Equip/Mat/Scaf: 5
- Incompatibles: 4
- Barricade Down: 3
- Barricade Not Used: 3
- Body Protection: 2
- Electrical Tools/C: 2
- General Trash: 2
- Improper Stacking: 1
- Inadequate Insp: 1

Areas of Focus
Level 5 - Corrective Actions for PLIs

- Developed Recovery Plan
- Communication
  - Staff Meeting/Safety Committee mtgs
  - Posting Results in Break Areas
  - Mass Safety Meeting
  - Toolbox Topic/Pre Task reviews
- Training
- Focused Audits on Identified Problems
  - Example: Rigging connections, inspections, risk behaviors
  - Example: Scaffold inspections, material quality, construction quality
Level 6 - Follow up

Ensure Follow up & Closure through:

- Field Observations
  - SAP Audits
  - Management Audits
- Monitoring MS20 results
  - Consistent trending review
- Action Item Log
MS20 Benefits and Results

dependability, expertise, and safety
Benefits of Using MS20

- Initiates Proactive management vs reactive management and correlates with CII research.
- Engages Management, Supervision & Craft
- Provides immediate results at the local level.
- Allows more timely safety intervention and enhancement.
- More consistency on trending issues.
- Supported and analyzed from regional & corporate levels.
- Measures the Fundamentals of Safety
- Systematic Approach to Zero Incidents
Best Benefit – Injury Reduction!

Full utilization of MS20 with all Contractors

# of Recordables

0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90

2006 2007 Jan- Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 2008 2009 PTD

0 1 2 3 4 5 6 7 8

Recordables PTD TRR

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Questions & Answers