The Road To Safety
Working Together:
- Caterpillar
- Its Customers
- Its Dealers

“Safer by Design”
Resources for Safety

- Caterpillar University
- Caterpillar Safety Design Guide
- Product performance data from many sources
- A formal New Product Introduction program
- Excellent Operation & Maintenance Manuals and other product support documentation
- International Design/Performance Standards
- Global regulatory requirements
- Involved Customers…”zero harm”
CAT Safety Design Guide

- The accumulation of years of Caterpillar experience related to product safety
- Updated in 2003
- Available to designers online internally
- Product designed to these guidelines can be sold globally with minor changes
- SDG drives consistency on Caterpillar products with regard to safety
Global Performance Standards

• CAT uses globally-recognized international performance standards from ISO
• Encourage ISO/“Dual-Designation” in other venues
• Accept ISO: Russia, Japan, China, Latin America, Middle East, South Africa, etc.
• CEN (EU) & ISO generally technical equivalent
• Earthmoving machinery “type C” global standards are ISO or ISO-based
Design Safety Hierarchy

- Eliminate the hazard
- Guard against the hazard
- Warn against the hazard
- Train against the hazard
- Provide personal protection
The safety strategy at Caterpillar is designed to…

- Create a *Safety Culture* to match that of our customers
- Further *Differentiate* CAT products with safety
- Enable customers to buy units meeting internal standards & local regulations where practical
- Enable *partnering with customers* on initiatives related to Social Responsibility
CAT Critical Success Factors

• We will be recognized as a profitable, innovative, well-managed industry leader with a strong focus on social responsibility and sustaining the environment

• We must have the best products, services, and solutions for each market segment

• We must maximize customer value through product support excellence
6 Sigma at Caterpillar

• CSF: “We will *imbed 6 Sigma* to drive continuous improvement throughout the value chain”
  – Fact-based, data-driven, & CEO sponsored
  – 2,761 Black Belts; 26,000 employees on teams
  – 4,065 Project Sponsors/Process Owners
  – 1,000’s of projects
    • $950M: Research & Engineering / year
    • New Product Introduction (NPI) programs
    • Continuous Product Improvement (CPI)
“Voice of the Customer”

“The health & safety of our employees, our contractors & our community is our highest priority”

Which product features?

What are the related priorities?
<table>
<thead>
<tr>
<th>Type of Earthmoving Equipment</th>
<th>Hyd Excav</th>
<th>Trucks</th>
<th>TTT</th>
<th>LWL/WD</th>
<th>MG</th>
<th>All Types</th>
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<tbody>
<tr>
<td>Fires</td>
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<td>Ergonomics</td>
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<td>Operator Fatigue</td>
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<td>Braking System</td>
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<td>Service Lockout</td>
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<td>Maintainability</td>
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Key:  P1 – First Priority      P2 – Second Priority      NA – Not applicable      WIP – Work in progress
<table>
<thead>
<tr>
<th>Priority Ranking</th>
<th>Haul Trucks</th>
<th>Tracked Dozers</th>
<th>Wheel Loaders &amp; Dozers</th>
<th>Motor Graders</th>
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<td>Operator Fatigue</td>
<td>1</td>
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<td>Maintenance Activities</td>
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<td>Proximity Devices - Collision Avoidance</td>
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<td>Visibility</td>
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<td>Vibration - Ergonomics</td>
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<td>Fuel Efficiency &amp; Emissions</td>
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<td>Fire Protection</td>
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Social Responsibility Initiative

• 100% customer-pulled, defined, & prioritized
• 55 total projects
  – All mining product teams
  – 37 model feature projects
  – 11 general product feature projects
  – 7 research projects
Product Feature Examples

- Multi-point operator restraints on trucks
- Improved service/maintenance access
- Improved operator visibility
- More stairway access systems
- Service lockout functionality
- Backup alarm options
- HID lighting
- Whole body vibration
- Reduced operator noise
- Improved cab pressurization
Joint Project Examples

• Health, Safety, Environment & Community
  – Noise emissions
  – Fire prevention on trucks
  – Whole body vibration: trucks & tractors
  – Reduced fluids consumption & disposal

• Customer Cost Reduction Opportunities
  – Process & productivity improvements
  – Improved equipment reliability
  – Reduced maintenance & repair
“The kind of company I’d like to do business with is one that …”

- Sets a high standard of integrity using its “Code of Worldwide Business Conduct”
- Identifies Social Responsibility & Sustainable Development as “Critical Success Factors”
- Identifies the safety of its employees and those of its customers as a “Critical Success Factor”
- Invests heavily in research & engineering to advance the industry state-of-the-art
- Provides the best products & best value
Social Responsibility

Caterpillar is dedicated to sustaining the environment and improving the quality of life. In everything we do, we are guided by our Code of Worldwide Business Conduct. It is why we meet or exceed local environmental regulations, develop solutions to customer environmental challenges, advocate free trade and take the lead in the business community on important issues.

SAFELY HOME. EVERYONE. EVERY SHIFT.
Supplemental Slides
6 Sigma Is:

- **Relentless** quest for perfection
- Data-driven, **fact-based** decision making
- **Focusing** our best people on our highest priorities
- Improve the **processes**
- **Rigorous alignment** of actions with strategy
- **Measuring** bottom-line impact
- **Transforming** how people work

**6 Sigma is about success!**
6 Sigma Roles

- Executive Leadership
- Deployment Champions
- Project Sponsors
- Process Owners
- Master Black Belts
- Black Belts
- Green Belts
- Yellow Belts
6 Sigma Benefit Classifications

- Level I – direct benefits
- Level II – redeployments
- Level III – opportunities for future benefits and avoidances

- Why classify benefits?
  - Understand financial impact
  - External communications
  - Accretive model