NAVSEA SAFETY JOURNEY

Mr. Jim Brice
NAVSEA SEA 04R

30 Jun 2010
Objectives

• Improve Safety across all NAVSEA Industrial Activities – Public and Private
• Reduce Safety hazards and mishaps to As Low As Reasonably Achievable – ALARA
• Mainstream Safety
• Implement Safety Pyramid and VPP+ Model
• Achieve Alignment
• Raise Standards – Achieve Excellence
Mission
- We develop, deliver and maintain ships and systems on time, on cost for the United States Navy.

Vision
- We are the Nation’s team accountable for achieving the 313 ship Navy

Goals
- Build an Affordable Future Fleet
- Sustain Today’s Fleet Efficiently & Effectively
- Enable Our People

NAVSEA annually executes a $30B budget, approximately 25% of the DON budget
NAVSEA Personnel

<table>
<thead>
<tr>
<th>Category</th>
<th>Civilians</th>
<th>Military</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naval Shipyard/Civilians</td>
<td>25,667</td>
<td>1,253</td>
</tr>
<tr>
<td>Naval Shipyard/Mil</td>
<td>1,253</td>
<td>114</td>
</tr>
<tr>
<td>SUPSHIPS</td>
<td>1,159</td>
<td>114</td>
</tr>
<tr>
<td>Other Field Act's</td>
<td>1,057</td>
<td>315</td>
</tr>
<tr>
<td>DIR/PEO</td>
<td>2,694</td>
<td>315</td>
</tr>
<tr>
<td>Dir/PEO Civilian</td>
<td>2,694</td>
<td></td>
</tr>
<tr>
<td>Dir/PEO Military</td>
<td>315</td>
<td></td>
</tr>
<tr>
<td>Field Civilian</td>
<td>47,188</td>
<td></td>
</tr>
<tr>
<td>Field Military</td>
<td>2,704</td>
<td></td>
</tr>
<tr>
<td>Mil and CIV-FY09 CERTIFIED</td>
<td>52,901</td>
<td></td>
</tr>
</tbody>
</table>

Warfare Center Civilians: 19,305

Working Capital Fund Billets: Mil 384

Fleet Owned and NAVSEA Operated: Mil 315
Naval Shipyard Totals

TCIR = Total Cases per 100 Employees
DART = Days Away, Restricted or Transferred Cases per 100 Employees

BLS Ship Building and Repairing Private Industry 2008 Rate

TCIR: 8.5
DART: 5.2

CUMULATIVE DATA

POC: Mr. Brian McCaffrey SEA 04RS

30 Jun 2010
Keeping America’s Navy #1 in the World
SUPSHIP Totals

TCIR = Total Cases per 100 Employees
DART = Days Away, Restricted or Transferred Cases per 100 Employees

BLS Ship Building and Repairing Private Industry 2008 Rate
TCIR: 8.5
DART: 5.2

CUMULATIVE DATA

POC: Mr. Brian McCaffrey SEA 04RS

30 Jun 2010
Keeping America’s Navy #1 in the World
RMC Totals

TCIR = Total Cases per 100 Employees
DART = Days Away, Restricted or Transferred Cases per 100 Employees

BLS Ship Building and Repairing Private Industry 2008 Rate
TCIR: 8.5
DART: 5.2

Collection of RMC data began in 4Qtr of CY 2009.

POC: Mr. Brian McCaffrey SEA 04RS

30 Jun 2010
Keeping America’s Navy #1 in the World
Safety Incidents

- Dec 09 – Fall Fatality at a SY
  - P4 from 00 Directing Action and Assessments
- Feb 10 – Electrical Fatality on a CVN
  - 00 Fleet Advisory on Electrical Safety Practices
  - 04 Message to Industrial Activities on Electrical Safety Practices
- Mar 10 – Arc Flash Incident on a Sub
  - 04 Letter on Electrical Safety – Fundamentals, Supervision, Trouble Reports
- Requested Assessments of Risks/Hazards
Additional Concerns

• Other Industrial Safety Incidents
  – Washington Metro Fatalities
  – Toyota Safety Issues
  – West Virginia Mine Accident

• NAVSEA visits to NSYs finding fundamental safety violations not being identified by the SYs.

• While injury rates appear good, total number of injuries is high. Over 1200 people a year injured with most involving lost time of greater than a day.
Feedback

- Command leadership needs to be visibly committed to Safety as #1 Priority
- Ownership of Safety - Mainstream
- Accountability for Adherence to Standards must be horizontal and vertical
- Inadequate understanding of Level 3 issues and leading indicators
- Need to improve the Level of Knowledge – Safety training needs to be more effective
- Need to improve Operational Risk Management and Engineering Controls
Safety Summit

• 11-13 May 2010
• For Industrial Activities
  – NSYs, RMCs, SUPSHIPs
• Codes well represented
  – 106, 900, 300N, 200
• Action Oriented
  – Define the Problem
  – Develop POAM
Case for Change

• Fatalities and Serious Injuries Unacceptable.
• Need to Increase Margin to Failure:
  – Raise Standards.
  – Work on Problems While Small.
• Improve Hazard Focus:
  – Prevent switches lining up.
• Learn to See.
• It is Personal.
• Understand How Work is Being Executed.
Problem Statement

- NAVSEA needs to raise the standards for planning and executing work in Industrial Activities that minimizes exposure to hazards, particularly in the high risk evolutions. Our workers and supervisors:
  - Are not recognizing hazards associated with high risk work,
  - Are routinely accepting dangerous working conditions because "it's always been that way,"
  - Have become accustomed to living with problems in the press to get things done.
Root Causes

- Managers do not give safety same level of attention as cost and schedule.
- Managers do not understand how the work is actually being accomplished (e.g., what high hazard work is being performed).
- Managers do not expend effort to engineer risk and hazards out of the work.
- Work environment is poor (e.g., too many safety deficiencies, managers not correcting deficiencies, lack of consequences leads to accepting the conditions).
- Supervisors are inexperienced, lack training in hazards their workers face, and do not provide good briefs – one way instead of interactive.
- Workers do not recognize hazards (i.e., weak training, not experienced in surveillances, poor operational risk management (ORM) skills).
- Critiques have not been focused on safety issues and too often end with the cause being personnel error.
- Surveillances and self assessments need broader involvement across the organization to improve effectiveness and consistency.
Conclusions

• Need more of a risk based approach focused on reducing hazards and potential for serious injuries.
• Need to find and fix safety problems instead of them finding us.
• Need a long range vision of zero injuries.
• Need to embrace and adopt proven models – Nuclear Safety, Radiological Safety, Crane Safety, etc.
Safety Pyramid

ALARA for Safety
Risk Based Approach
Minimize Exposure to All Hazards

30 Jun 2010
Keeping America’s Navy #1 in the World
The Route To ZERO

Injury Rates

Reactive
- Safety by Natural Instinct
- Compliance is the Goal
- Delegated to Safety Manager
- Lack of Management Involvement

Dependent
- Management Commitment
- Condition of Employment
- Fear/Discipline
- Rules/Procedures
- Supervisor Control, Emphasis, and Goals
- Value All People
- Training

Independent
- Personal Knowledge, Commitment, and Standards
- Internalization
- Personal Value
- Care for Self
- Practice, Habits
- Individual Recognition

Interdependent
- Help Others Conform
- Others' Keeper
- Networking Contributor
- Care for Others
- Organizational Pride

Teams

Supervision

Natural Instincts
### Industrial Safety Improvement Plan (24 May 2010)

<table>
<thead>
<tr>
<th>Safety Mgt System Area</th>
<th>Current Perceived State</th>
<th>Future Desired State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management/Leadership</td>
<td>Turn to ESH Director (Code 106)</td>
<td>Mainstream Safety</td>
</tr>
<tr>
<td></td>
<td>Tend to Blame Workers</td>
<td>Ownership Mind Set - Responsible and Accountable</td>
</tr>
<tr>
<td></td>
<td>Marginal Goals</td>
<td>Critique Problems</td>
</tr>
<tr>
<td></td>
<td>Track Lagging Metrics</td>
<td>Set Higher Expectation - Zero Injuries in High Risk Areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Code 106 is Oversight</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Better Safety Metrics - Safety Metrics for each Project/Avail</td>
</tr>
<tr>
<td>Employee Involvement</td>
<td>Compliance</td>
<td>Commitment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Operational Risk Management (ORM)</td>
</tr>
<tr>
<td>SF/Contractors</td>
<td>Aware of Safety Performance</td>
<td>Proper Technical Control of Work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Same Standards as SY (i.e., do not work energized)</td>
</tr>
<tr>
<td>Hazard Awareness</td>
<td>ORM</td>
<td>ALARA</td>
</tr>
<tr>
<td>Hazard Abatement</td>
<td>ODRs</td>
<td>SDRs (like RDRs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High Risk Work Permits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Broader Surveillances - More Areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Better Assessments</td>
</tr>
<tr>
<td>Safety Training</td>
<td>Too Routine</td>
<td>More Interactive - More Tests - More Frequent in High Risk Areas</td>
</tr>
<tr>
<td></td>
<td>One Time</td>
<td>Incorporate Practicals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improve Hazard Recognition and Risk Management</td>
</tr>
</tbody>
</table>
Mainstreaming Safety

- **Shared Ownership:**
  - Engineering, Production, and Projects (Training & Supervision).
  - 105,106,130 Oversight.

- **Leadership Sets the Example:**
  - Right Standards.
  - Union Involvement.
  - ALARA

- **Worker Training Essential.**
- **Reporting Culture.**
- **Safety Included in Drills.**
- **Customer Support.**
Trouble Reports and Critiques

• Reporting / Just Culture.
• Clearly Identify the Problems.
• Analyze Causes – Switches.
• Complete Corrective Actions.
• Write Clearly.
• Understand How Work is Done.
Electrocution Switch Theory

Workers viewed work as operational instead of maintenance.

Inadequate Training

Workers misapplied allowance for 4160v swbds to 450v bkers.

Inadequate Knowledge

Procedure insufficient wrt isolation and safety precautions.

Inadequate Engineering

Work Authorization issued with no tag out required – did not identify work as energized.

Inadequate Work Control

No brief conducted. Procedure or Tech Manual not on station.

Inadequate Control

Electrician on station supervising and monitoring, but provided ineffective backup.

Inadequate Supervision

Permissions not obtained.

Inadequate Control

Control power fuses not pulled as required by Procedure.

Inadequate Procedure Compliance

Worker performs the work with no electrical safety precautions.

Inadequate Procedure Compliance

Supervisor compromises supervisory role – reacts wrong to unusual condition.

Inadequate Supervision and Risk Management
Engineering for Reduced Risk

• Define high risk work items:
  – SYs, RMCs, SUPSHIP Reps.
  – Start with 08 List.
  – Compare to NAVSEA / OSHA / NAVFAC requirements.

• Assess Current Processes:
  – WAFs, Briefs, JHAs, etc.

• Define Problems:
  – Lack of management visibility.
  – Worker knowledge and commitment.
  – Larger gap with facilities.

• Recommend High Risk Work Permit (HRWP) or how to integrate into existing process (WAF).

• Recommend how to improve engineered controls for safety:
  – Recommend interim actions.

• Lead is PNSY engineering. Six Month Time Frame.
Risk Management and Worker Commitment - Plan

- Form corporate cross-functional teams among the SYs and RMCs initially, merge with SUPSHIPs and private SYs at a later time. Address four high risk areas.
  - Led by Production and Engineering with Safety Support.
  - Electrical Group at Portsmouth lead Electrical Safety.
  - Service Group at Norfolk lead Fall Protection.
  - Structural Group at Puget lead Confined Space Entry.
  - Piping Group at Pearl lead Energy Control (LOTO) in Facilities.

- Evaluate the ideas and develop concrete plans to improve performance and reduce risks and hazards in these areas.

- Three to six month time frame.
Risk Management and Worker Commitment - Problems

• Workers ability to recognize hazards:
  – Weak training.
  – Not surveilling.

• Environment needs improvement:
  – Too many safety deficiencies.
  – Management not always correcting / standards issue.
  – Lack of consequences?

• Briefs – perceived to be one-way, not interactive.

• Critiques:
  – Need safety focus.
  – Too much employee error.

• Not backing each other up.

• Safety needs same emphasis as schedule/cost.

• Resources.
Risk Management and Worker Commitment - Ideas

- Improve training – OSHA 10 hr / 30 hr:
  - Safety training specific.
  - Skill – apprentice training.
  - High risk areas.
- Worker surveillances – employee-based.
- Interactive briefs – worker-led.
- Improve environment. Fix deficiencies.
- Management surveillances.
- Union leadership too.
- Recognition of good behavior – rewarding, proactive, and self-reporting.
- Safety observer.
- Focus on human factors.
- Critiques = Safe Working Environment.
Corporate Safety Metrics

• Continue OSHA TCIR and DART:
  – Organization level quarterly.
  – Project level monthly.

• Add Level 1 and 2 Problems – Number:
  – Organization level quarterly.
  – Project level monthly.

• Do not report injury-free days:
  – May discourage reporting.
Deficiency Documentation and Reporting

• Better focus of finding and elevating Level 1, 2, and 3 deficiencies.
• Consider RDR-like process.
• Integrate safety issues associated with work and tie to production function areas (confined space entry, fall protection, LOTO, electrical safety).
• Standard attributes (high risk) and training.
• High risk analysis, trending, and self-assessment.
• Lead is PSNS&IMF C106. One Year Time Frame.
Self Assessments

- Need to improve – find the problems.
- Incorporate Safety Pyramid concept and ALARA.
- Focus more on high risk areas – deep dives.
- Include more Departments, not just C106.
- Elevate significant findings immediately.
- Foundation is frequent in process surveillances.
- Identify and act on trends.
- Annual report should be simple and straight-forward based on continuous review all year long.
- Drives continuous and lasting improvement.
- Each organization take for action.
Ship’s Force

• For SY Availabilities:
  – SY is the maintenance expert.
  – Must provide proper technical control and oversight of assigned work regardless of who performs.
  – SY and SF must have same standards.

• Need to examine who performs the work:
  – Not right to assign energized work to SF because they have different practices.
  – NO MORE!
Contractors

• Same Standards apply to contractors:
  – They follow OSHA.
  – Follow our rules for high risk work.

• MSMO contractors need to lead:
  – In charge of their subs.
  – Apply proper work control and safety requirements.
  – Ensure compliance.
Focus on Standards

Note: As focus is increased on achieving higher Standards (Safety and Quality), Productivity follows suit.
Summary

• Good Alignment within NAVSEA.
• Start with NSYs, RMCs, and SUPSHIPs.
• Figure out how to grow to Private Sector.
• Assess idea of NAVSEA Corporate Safety Manual comparable to SEA 08 ESH Manual.
• Develop Communication Strategy.
• Formal Meeting Minutes to be Issued with Plan of Action.
• 04R will Follow and Track Actions.
• Resources will have to be addressed.