Safety Metrics and Measures & Behavior-Based Safety

Enhance your Safety System Management through Proven Quantitative and Qualitative Metrics & Techniques

16 November - 20 November 2015 at Kuala Lumpur, Malaysia

Deborah L. Grubbe, P.E., CEng
President & Owner
Operations and Safety Solutions, LLC

- Over 30 years of industry experience in process safety management
- Well-known Consultant, President & Owner of Operations and Safety Solutions, LLC
- Vice President - Group Safety, BP Global (2005-2007) - considered to be the safest years ever for BP (2008 BP Sustainability Report)
- Chair, Institute for Sustainability (American Institute of Engineers)
- Previous Corporate Director for Safety and Health, Dupont

Awards & Honors
- Engineer of the Year - State of Delaware 2002
- Fellow, American Institute of Chemical Engineers 2002
- Emeritus Member, Center for Chemical Process Safety 2010

Masterclass Objectives

Safety Metrics & Measures
- IDENTIFY leading and lagging indicators to sustain safety standards within your company
- DEVELOP both retrospective and prospective way of looking at safety through measurable incident indicators
- INTEGRATE measurable metrics that best-fit your safety system
- BENCHMARK to best industry practices and evaluate how to adapt these metrics to current process safety programs
- KNOW what types of data are used for safety measurements and their implications

Behavior-Based Safety
- GAIN thorough understanding of the basic elements of BBS and how it can be applied in your team
- INTEGRATE application of BBS framework in improving and upholding optimum safety standards and work productivity
- STRUCTURE BBS into measurable parameters in terms of safety improvements and performance efficiency
- UNDERSTAND the human behavior and LEARN how to manage that behavior
- IMPROVE employee “buy in” to workplace issues & OVERCOME the “us & them” attitude within an organization
- APPLY workforce management procedures that support good moral
- PROMOTE teamwork as a means of improving productivity and cost reduction

Supported by
Safely Metrics & Measures
While learning what metrics are available in the O&G industry is important, the most crucial part is on what you do with the information that you have. This program will not only equip participants with the knowledge on what metrics to use, but also with the skills on how to utilize these data for the improvement of your safety & business performance.

Quantitative and qualitative safety metrics will be tackled. Participants will learn about trailing indicators & leading indicators, which will be useful for revealing safety improvement opportunities. Moreover, Delegates will learn about economic and technical ratios, system audits, composite formulations, and statistical and partial maintenance productivity indices. No specific set of metrics can be applicable to all operational activities. As such, this course takes an “adaptive” approach, focusing more on how you can apply metrics which best fit your operations. Case studies and intensive work sessions will be conducted to provide an avenue for knowledge exchange among industry peers.

Behavior-Based Safety
Accidents are more often the result of workplace culture than any other factors combined. This course will help participants understand well-managed behavior-based safety system that can improve the profitability and the organization’s operational efficiency. This program upholds above all else, a “Safety-First” culture. This will be presented through various techniques in generating developing, and maintaining a BBS management system that will be able to resolve risky behaviors.

The program will look at how many current risk management processes “set up” the workforce for failure, and then the impact this environment has on the workforce culture and individuals behaviors. In a workshop-style training environment, we identify the “bigger picture” regarding poor workplace morale and the impact it has on workplace operations and operational costs. Several case studies will be discussed in order to learn from past catastrophic incidents in the oil and gas industry. Moreover, in-depth class discussion will be facilitated to promote a good exchange of first-hand field knowledge amongst delegates.

Specially Designed for
This training is specially designed for those who are involved with safety systems management, operations & maintenance safety management, and safety monitoring and reporting:
- HSE Managers/Engineers/Executives
- Project Managers/Engineers/Executives
- HR & Training Managers/Executives
- Operations Managers/Engineers
- Safety Engineers
- Team Leaders & Department Heads

Testimonials from Deborah’s Training Attendees

“Great approach, experience, and knowledge from the instructor. I will definitely recommend her to my top management when I get back!” - Safety Officer, MDPC

“Miss Deborah is an amazing instructor. Having very good hands-on experience on Safety Management System, she shared a lot of knowledge and experience during the course.”
- Process Engineer, FFC

“In engaging Deborah for a course, PetroSync has obtained the correct ingredient encompassing knowledge and experience to talk about safety.” - Operations Project Superintendent, MDPC

IN-HOUSE SOLUTIONS
SAVE COST • IMPROVE PERFORMANCE • REDUCE RISK
PetroSync understands that in current economic climate, getting an excellent return on your training investment is critical for all our clients. This excellent training can be conducted exclusively for your organization. The training can be tailored to meet your specific needs at your preferred location and time. We will meet you anywhere around the globe.

If you like to know more about this excellent program, please contact Jerry Tay (Conference Director) on +65 6415 4502 or email jerry.t@petrosync.com
DAY 1

Purpose of Workshop on Metrics and Measurements
Work Session: Why do we measure data?

Why do we take measurements?
Human Nature around measurement
Working in your favor
Working against your interests
What happens in your company?

Common Forms of Measurements
Outcome; In process; Initial

Common Errors in Measurements
Errors; Significance; Cause and Effect

Management Science and the Drive to Measure
Common Fallacies
Aspects of a Good Measurement System
Philosophy of Continuous Improvement

Types of Measurements
Qualitative
-Safety System Audits
-Balanced Scorecards
Quantitative
- Economic & Technical Ratios
- Maintenance Productivity Indices
-Common Systems

Tools Used in Measurements
Hard Tools; Soft Tools; Common tools and systems

Types of Lagging Indicators (Retrospective)
Injuries
Recordable Incident Role
Compensation Costs

Types of Leading Indicators (Prospective)
Activities, Behavior, & Accomplishment
Audit
Near Miss Responses
Safety Communications
Safety Committee Activity
Sub Safety Analysis
Safety Climate Perception Surveys
Observed Safe Behaviors

Work Session: Share key measures and metrics used by your company. Critique what you see that could be improved in how measurements and metrics are implemented.

DAY 2

Review of Work Session:
Group discussion on current safety metrics implemented in your company.

Near-Miss Management
Importance of having Near-Miss Reporting & Measures
Demands to Safety System
Primary Containment Inspection or Testing
Results Outside Acceptable Limits
Process Deviation or Excursion
Industry Examples
Work Session: What is your current near-miss management system?

Rate Adjusted Metrics
Process Safety Total Incident Rate

Industry Process Safety Metrics & Their Implications
Total Count of Process Safety Incidents
Process Safety Total Incident Rate
Process Safety Incident Severity Rate

Frequency of Data Measurement
Effect of Purpose and Use
Raw Data, Information Trends, Analysis

Representing and Sharing Data
General Principles
Keeping it Simple

Significance and Data Analysis
Simple analysis
More complex analyses
Typical software programs

When Management Fails to Understand or Misleads
Not fitting the pattern
Extrapolation
Interpolation
Risk management
Common issues and outcomes
DAY 2 (continued)

When Stakeholders Fail to Understand or Encourages
Societal impacts
Employee impacts
Corporate impact

How Corporate Structures address and work with Measures
Board and executive function
Senior management activities
Middle Management processes
Lower level management
Workforce attitudes and data collection
Ethics policies and enforcement
How data changes the conversation

Process Industry Trends in Metrics and Measures
Using an Example of how US Chemical Safety Board uses metrics to improve

Work Session: Using tools learned today, analyze your most serious measurement challenge, and come to Day 3 prepared to discuss your potential solution to the problem you face. Be prepared to discuss this with the entire class. Change any descriptors as needed to assure confidentiality.

DAY 3

Using an Example of how US Chemical Safety Board uses metrics to improve
Following what the data tells us

Continuous Improvement
Typical CI System
Benefits
Types of CI Systems
Common issues in CI Systems
Areas of Management Support and Buy In

Continuous Improvement Case Studies
DuPont
Oil and Gas Case Studies
Key aspects of all of these case studies
Critical components of your overall system

Using Data to Set Goals
Management Parameters
Ability of Organization to Change and to Accept Change
Aggressive Goals – Benefits and Pitfalls
Easy Targets – Benefits and Pitfalls
Little Data or Big Data
Complexity

Choosing a CI System
How Metrics affect your corporate culture
Making your recommendation
Communications
Training
Tying CI to your Corporate Values

Next Steps for Your Firm’s Metrics and Measurements Effort
Begin with the end in mind
Right thinking for your firms’ objectives

Summary & Conclusion
DAY 4
Foundation of Behavior-Based Safety (BBS)
WHAT is BBS? WHY do you want to implement BBS?
WHO is BBS for? WHAT does a good BBS look like?

Safety Culture & Behavior-Based Safety
How does BBS affect your Safety Culture? How do firms look at Culture? Why is Culture important?
Characteristics of Different Stages of Culture

Work Session: Characterize your firm’s Safety Culture

Behavioral Safety Process
Observing, Intervening, & Recording
Role of the Safety Committee
Data Usage & Critical Success Factors
Active Management Support

Behavioral Analysis & Change Program
WHY would you want to improve your Safety Culture?
HOW do you make cultural change?
Leadership
Work Processes & Systems

Work Session:
What do leaders do to help safety?
What do leaders do to hurt safety performance?

BBS & Leaders
How do we get leader to change their behavior?
Appealing to the leader in everyone
Establishing the connection between BBS & improved business results

BBS Systems
What are systems? Key systems in BBS; HR; Communications; Metrics and Measures; Safety and Operational Standards

Continuous Improvement & BBS
What is Continuous Improvement? CI Methodologies Useful in Cultural Change ; Deming Cycle; Lean

Goal Setting for BBS System
Setting Goals for BBS; Where are you now? Where do you want to be? What is in your way? What path will you take to get there?

BBS & Your Company’s Values & Principles
Examining Your Corporate Values
Establishing Improved Value and Principles

Work Session: Two Examples of Values and Principles

The Special Role of Ethics in BBS

Work Session:
How do ethics support BBS implementation?
What kinds of conversations do you have about ethics?
Why is ethics important?

Case Study #1:
Review of the Texas City Explosion of 2005 and identify the Indicators

DAY 5
Review of Case Study #1
Work Session: Why were the warning signs missed?

BBS & Your Standards of Operation (Observing & Intervention)
Examining Your Standards of Operation

Establishing Improved Standards of Operation
Common Faults Around Standards
Examining Your Current Behaviors
How and why are people disciplined?
Determining which behaviors you need to change
Understanding the Obstacles in your Path Towards Improvement

Identifying Patterns in Behavioral Recordings
What is the purpose of recording? What do you need to record?
Issues to consider in collecting the observation cards
Analyzing the Data

Case Study 2: Deepwater Horizon – What elements of BBS were present and were missing?

Work Session: Review the elements of BBS that were present and missing.
Compare to the Texas City Reports and Information. Discuss. s and outcomes

Holding Management Accountable & Leaders Involvement
Board Involvement ; Strategic Leadership and Operational Layers; Getting them Engaged; Establishing Trusted Coaches

BBS & HR System
HR System to Support the change; Establishing HR as a Partner; Rewards and Recognition; Hiring Promotion;
Structure and System in Rewards and Recognition; Termination and Demotion

Key Safety Systems Need to Support the Change
Communications; Incident Investigations; Audit;
Training; Detailed Procedures for your More Hazardous Jobs

Evaluating the Tactics in Motivating Behavior
What are your KPIs?
Measuring Risk Assurance and Near Miss Incidents
Measuring your Progress
How Fast do You want to Improve?
Number of CI cycles in a timeframe
Organizational Ability to Absorb Change
Integrating HSE Process Safety System & Business Profitability Metrics

Developing your Personalized Plan for Improving BBS
Work Session: Map out your next steps “Back At”
Deborah Grubbe is a well-known consultant with over 30 years of experience in disciplined operations of manufacturing, safety, and engineering across industries including the oil and gas. She has served as Vice–President of Group Safety for BP Global in London, and her term in BP was considered to be the safest years ever for the company. She has also served as Vice-President for Safety Change Management in BP-USA, handling 5 refineries which had the highest need for safety improvement. These were also subjects of the Independent Panel Assessment Report led by former US Secretary of State James Baker. Deborah is well-experienced in the characteristics of safe operations during her 27 years at DuPont. She has held corporate director positions in safety, operations, and engineering.

Her organizational affiliations spans across governmental, industrial and technical, and education bodies:

- US National Safety Council, Board of Trustee (Previous)
- International Safety Council, Board of Directors (Previous)
- American Institute of Chemical Engineers, Board of Directors (Previous)
- Center for Chemical Process Safety (Previous)
- National Society of Professional Engineers, Vice Chair (Previous)
- State of Delaware Registration Board for Professional Engineers (Previous)
- American Society of Safety Engineer Member (Present)

Ms. Grubbe’s career has achieved recognition in the previous years including the following:

- Engineer of the Year, State of Delaware (2002)
- Purdue University Distinguished Engineering Alumna Award (2002)
- Outstanding Chemical Engineer, Purdue University (1994)

Deborah Grubbe is currently the owner and principal consultant of Operations and Safety Solutions LLC, a consultancy firm which specializes in safety and operations troubleshooting and support, with her major clients including Shell and Dupont. She is currently a member of the Board of Advisors and a lecturer for the University of Alabama-Birmingham Advanced Safety and Engineering Management Master’s Program. She also serves in Purdue University College of Engineering as member of Dean’s Advisory Council, Process Safety Management Course Developer (2008) and Lecturer (since 2005). In 2010, she has received an Honorary Doctorate in Engineering from Purdue University for her contributions to safe operations.

Publications:

“Lessons from DuPont: Culture, Cost, People” (May 2004) Cap Gemini Ernst & Young for The Healthcare Technology project

“What Causes Safety System Failure” (March 2009) PE Magazine, Publication of National Society of Professional Engineers

Also Featured in Media Publications:

- Engineer Your Way to Success, National Society of Professional Engineers 1989
- Extra-Ordinary Women Engineers, American Society of Civil Engineers 2005
Course Details
Title: Safety Metrics and Measures & Behavior-Based Safety
Date: 16 November - 20 November, 2015
Location: Kuala Lumpur, Malaysia

INVESTMENT PACKAGES

<table>
<thead>
<tr>
<th>Investment Package</th>
<th>Deadline</th>
<th>5 DAYS MASTERCLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Price</td>
<td>13 Nov 2015</td>
<td>SGD $ 5,995</td>
</tr>
<tr>
<td>Early Bird Offer</td>
<td>23 Oct 2015</td>
<td>SGD $ 5,795</td>
</tr>
<tr>
<td>Group Discount (3 or more Delegates)</td>
<td>13 Nov 2015</td>
<td>10% discount for groups of 3 registering from the same organization at the same time</td>
</tr>
</tbody>
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Group Discount is based on Standard Price
* To enjoy the discount offer, payment must be made before deadline
* For 5 or more delegates, please inquire for more attractive package.
* Prices include lunches, refreshments and materials. Discount cannot be combined with other promotional offers.
* Important: Please note that registration without payment will incur a SGD 200 administration fee.

DELEGATES DETAILS

1st Delegate Name ____________________________  Mr  Mrs  Ms  Dr  Others
Direct Line Number: __________________________  Email: __________________________
Job Title: __________________________  Department: __________________________
Head of Department: __________________________

2nd Delegate Name ____________________________  Mr  Mrs  Ms  Dr  Others
Direct Line Number: __________________________  Email: __________________________
Job Title: __________________________  Department: __________________________
Head of Department: __________________________

3rd Delegate Name ____________________________  Mr  Mrs  Ms  Dr  Others
Direct Line Number: __________________________  Email: __________________________
Job Title: __________________________  Department: __________________________
Head of Department: __________________________

INVOICE DETAILS
Attention Invoice to: __________________________
Direct Line Number: __________________________  Fax: __________________________
Company: __________________________  Industry: __________________________
Address: __________________________  Postcode: __________________________
Country: __________________________  Email: __________________________

Please note:
- Indicate if you have already registered by Phone  Fax  Email  Web
- If you have not received an acknowledgement before the training, please call us to confirm your booking.

PAYMENT METHODS

☐ By Credit Card:
Please debit my credit card:  Visa  MasterCard  AMEX  Security Code: __________
Card Number: __________–_________–_________–_________  Expiry Date: __________
Name printed on card: __________________________

☐ By Direct Transfer:
Please quote invoice number(s) on remittance advice
PetroSync Global Pte Ltd Bank details:
Account Name: PetroSync Global Pte Ltd
Bank Name: DBS Bank Ltd
Bank Code: 7171 • Bank Swift Code: DBSSSGSGXXX • Branch code: 288
Account No.: • SGD: 288-901898-0 • USD: 0288-002682-01-6

All bank charges to be borne by payer. Please ensure that PetroSync Global Pte Ltd receives the full invoiced amount.

CERTIFICATE OF ATTENDANCE
70% attendance is required for PetroSync’s Certificate of Attendance.

PAYMENT TERMS:
Payment is due in full at the time of registration. Full payment is mandatory for event attendance.

CHARGES & FEE(s)
- For Payment by Direct Telegraphic Transfer, client has to bear both local and oversea bank charges.
- For credit card payment, there is additional 4% credit card processing fee.

I agree to PetroSync’s terms & conditions, payment terms and cancellation policy.

Authorized Signature: __________________________
PAYMENT TERMS: Payment is due in full at the time of registration. Full payment is mandatory for event attendance.