



Safety Management

In Oil and Gas
Exploration & Production

Agenda

- ▶ Definition of “Safety Program”
- ▶ Elements of “excellent” safety programs
- ▶ Where you are versus where you want to be
- ▶ Specific examples within major program elements
- ▶ Evaluating effectiveness

What is a Safety Program?

- ▶ Accident Prevention Program
- ▶ Personal Protective Equipment Program
- ▶ Hazard Communication Program
- ▶ Respiratory Protection Program
- ▶ Hearing Loss Prevention Program
- ▶ Fall Protection Program

Evaluating your Current Program

- ▶ Comprehensive vs. Piece-meal
- ▶ Is it improving?
- ▶ Is it reactive or proactive?

Elements of an *EXCELLENT* Safety Program

1. Top management is actively and visibly involved.
2. Employees participate in developing operating procedures.
3. Hazards of new or changed work are analyzed *before* starting.
4. Training is regularly scheduled, administered and documented – *and* it includes managers and supervisors.

Elements of an *EXCELLENT* Safety Program

5. Every incident is investigated, including near misses. Corrective actions are developed, assigned, and followed up to completion.
6. There is a near miss and first aid reporting procedure.
7. Annual performance evaluations include safety accountability.
8. Scheduled site inspections are conducted regularly.

A Typical Safety Program

- ▶ Company has a dedicated *Safety Guy* and he is responsible for making SURE that OSHA is complied with.
- ▶ He looks after 50 to 100 employees at several different job sites. Company practice is to comply only minimally with OSHA standards and there is little interest in improving the quality of the safety and health program.
- ▶ Managers and supervisors are not interested in the day to day aspects of the safety program – that's what the *Safety Guy* is for.

And Then....

- ▶ *THEN* one day, someone is killed or hurt badly on the job – the investigation begins.
- ▶ Reports are written, recommendations made, legal council sought.
- ▶ The accident happened during a non-routine task.
- ▶ The company is consumed by this one accident for several months, but it leads them to change their safety culture.

Now..

- ▶ Goal of zero work-related accidents.
- ▶ Implemented a safety management system (as well as environmental and quality management systems).
- ▶ First world-wide company to achieve a “triple certification”, (i.e., quality, safety, environmental).
- ▶ Safety is integrated into every business decision.

How do you get from “reactive” to “proactive”?

- ▶ Implement a “Management System”
- ▶ Lots of different model systems & tools with similar elements
 - ANSI Z10
 - OHSAS 18001 – International Standard in process
 - British Standard BS8800
 - OSHA VPP
 - Chemical Mfg Association Responsible Care
 - DNV International Safety Rating System
 - ISNetWorld / Browz
 - National Safety Council / The Campbell Institute

What is an Occupational Health & Safety Management System (OHSMS)

- ▶ A businesslike approach to safety
- ▶ Systematic, explicit and comprehensive process for management safety and risks.
- ▶ Provides for goal setting, planning, and measuring performance.
- ▶ Helps prioritize planning, organizing, controlling, monitoring & reviewing components of the program.
- ▶ Helps allocate resources in a reasonable and practicable manner.

They All Have Similar Elements

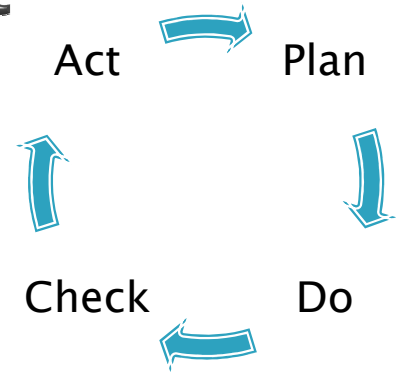
- ▶ Management leadership
- ▶ Employee Involvement
- ▶ Worksite Analysis
- ▶ Hazard Identification / Prevention / Control
- ▶ Training

What's the Difference?

- ▶ How is “world class” different than a traditional safety and health program?
 - Management and employees own and are actively involved in implementing and sustaining the “management system”
 - The world class system intentionally involves *everyone* in the company – top management, middle managers, line supervisors, and all employees.
 - It is a structured, organized, systematic management process that addresses the risks of the workplace logically and thoroughly.

Continual Improvement

1. Plan
 - Set policy, goals and targets
2. Do it
 - Train, communicate, control risks
3. Check
 - Corrective / Preventive Actions, Audits
4. Act
 - Management Review – where are we, where can we improve, change where needed and start over



Where to Start?

- ▶ Get top management approval
- ▶ Assess the current state
 - Self assessment
 - 3rd party assessment
- ▶ Identify your Gaps
 - Which programs or processes are deficient
 - Which do not exist
 - How much effort is needed to fill the gaps
 - How long will it take
- ▶ Set your objectives, targets (goals) for improvement

Gap Analysis (Baseline)

- ▶ Must identify what you are going to compare to first (design) – where do you want to be?
 - Management System?
 - Which one?
 - Do you want 3rd party certification?
 - Do you want OSHA recognition?
 - Are you a vendor or contractor for a company using ISNetWorld, Browz, or similar 3rd party for prequalification?

Typical Elements

The objective is to ensure effective OSH management and a process of continual improvement

- * Leadership Commitment

- * Hazard Analysis

- * Change Management

- * Operating Procedures

- * Safe Work Practices

- * Training

- * Critical Equipment

- * Pre-Startup Review

- * Emergency Response

- * Incident Investigation

- * Audits

- * Records & Documentation



Gap/
Baseline
Analysis



Draft an OSH
management
plan

Where are
we now?

Leadership Commitment

- ▶ Is there a general policy statement?
 - Is it signed by the senior manager or owner
 - Is it relevant to the company's activities, products or services?
- ▶ Has it been communicated to employees?
 - In manuals
 - Posted
Rule Booklets?
 - Training sessions
 - Publicly available (Internet, Intranet)

Leadership Commitment

- ▶ Has someone been assigned responsibility for safety and health?
 - Does his person report to the site manager or a member of senior managements?
 - Is adequate time, resources, and support available to this person?

Leadership Commitment

- ▶ Management participation
- ▶ Performance Standards
- ▶ *Employee participation*
- ▶ S&H Manual / reference library
- ▶ Internal Audits
- ▶ Responsibilities defined in job descriptions

Hazard Analysis

- ▶ Processes in place for identifying hazards, assessing risks, and implementing control measures.
 - Routine/ non-routine activities
 - All personnel (employees, visitors, contractors)
 - Facilities

Integrated Environmental and Safety Management System Planning Worksheet

- ▶ Definitions
- ▶ Activity List / Rating System
- ▶ Hazards List with risk rating used to set objectives for improvement

Example Planning Tool

Functional Area	Activity	Hazard	Severity	Frequency	Control	Compliance	Total Risk	Significant?
Drilling	Mixing drilling fluids	Vapor	2	5	2	2	40	No
Frac	Off loading sand	Silica Inhalation	3	3	2	3	54	Yes

Useful for assessment and prioritization – anything above “50” is considered *significant* or *high risk* thus requiring an objective / target/ goal for improvement.

“50” is somewhat arbitrary and will depend upon specific company and may change with time.

Change Management

- ▶ Written change management procedure / formal change management system
- ▶ Reviews and controls are instigated and initiated by senior management as appropriate.
- ▶ Key disciplines and technical resources are specified and included in the program.
- ▶ Develop methodology for evaluating risk due to the change – “what if” analysis, HAZOP study, etc.

Operating Procedures

- ▶ Standard Operating Procedures for key high risk activities
 - Conduct a “work process assessment” (similar to tasks analysis except more broad)
 - Focus on interaction between tasks and on work methods
 - Consider
 - Potential impact of errors,
 - Effect of incorrect sequencing of activities or tasks,
 - Minimum training and skill requirement

Safe Work Practices

- ▶ General Rules
 - No horseplay, No drugs or alcohol, Wear PPE, etc.
- ▶ Specialized Work Rules
 - Shop Safety
 - Crane Safety
- ▶ Permit to Work
 - Confined Space Entry
 - Hot Work
 - Excavation Permits
 - Major Lifts

Training

- ▶ Needs Assessment may be integrated into the hazard analysis phase
- ▶ Develop training matrix
- ▶ Maintain training schedule
- ▶ Include leadership training
 - Basic loss control
 - Incident investigation techniques
 - Problem solving / risk analysis

Critical Equipment

- ▶ *A critical part is a part or component of a piece of equipment or a structure whose failure is most likely to result in a major loss (to people, property, process and/or the environment)*

Example for Management of Critical Equipment

1. List all areas, structures, and equipment
2. Systematically review every item and identify which items are “critical parts”
3. Develop a “Critical Parts List” and identify what should be inspected to determine status
4. Assign an inspection frequency and responsibility

Example Critical Parts Inventory

EQUIPMENT / STRUCTURE	CRITICAL PARTS INVENTORY AND INSPECTION PROCESS		
CRITICAL PARTS	WHAT TO LOOK FOR	INSPECTION FREQUENCY	INSPECTION RESPONSIBILITY



Example Critical Parts Inspection Record

EQUIPMENT / STRUCTURE	CRITICAL PARTS INSPECTION RECORD			
DATE CHECKED	CRITICAL PART	FINDINGS	ACTION TAKEN	INITIALS



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Pre-Purchase/ Pre-Startup Review

- ▶ Pre-Purchase safety analysis
 - Limits the purchase of unsafe or hazard causing equipment; or alerts the need for controls
- ▶ Pre-Startup Safety Review
 - A secondary check to ensure all hazards are identified and corrected before the process starts.

Emergency Response

- ▶ Company may need one or more emergency response plans
- ▶ Apply the principle of the “critical few” – develop plans first for those emergency situations most likely to occur and/or possess the greatest potential for loss
- ▶ Must comply with applicable regulations, be based on an assessment of risk and all types of probably emergencies are addressed.

Incident Investigation

- ▶ System should include:
 - Kinds of incidents to be reported
 - When events are investigated
 - Who should be notified
 - Who conducts and participates in investigations
 - How is an investigation conducted
 - What reports are to be prepared
- ▶ Supervisors should be involved
- ▶ High Potential Near Misses should be included
- ▶ Investigators should be trained

Records / Documentation

- ▶ Documentation and recordkeeping are important for both demonstrating regulatory compliance and for effectively managing a comprehensive safety program
- ▶ Suggest documenting this process.
 - Record retention schedule
 - Where are records kept
 - How often are procedures updated
 - Document control – how to keep outdated procedures and documents from being inadvertently used.
 - Useful when multiple people are accessing documents and records
 - Filing structure and electronic file naming convention

Example Recordkeeping System

File System Index				
Level 1	Level 2	Level 3	Retention	Location/File
Training	Class Records	Fall Protection	7 years	HR files
Training	Training Plan	N/A	3 years	Safety Office
Training	Training Class Materials	Fall Protection	7 Years	Safety Office
Incident Reports	File by date		5 Years	Safety Office

Class Records
Training

Fall Protection
7 Years

Example of file
folder label

Audits

- ▶ Management System audit will evaluate the effectiveness of the system
 - Is there a plan in place to which an audit can be compared? Is the system fulfilling the plan?
 - Are inspections being done as specified?
 - Critical parts, planned general inspections, pre-use inspections
 - Are employees following rules and is training being conducted (and attended)

Summary

- ▶ Safety Programs
 - Come in all shapes and sizes
- ▶ *Excellent* Safety Programs
 - Systematic, proactive defined process for managing safety at all levels in the organization with employee involvement and understanding
- ▶ Continually evolving, being evaluated and improved (Plan, Do, Check, Act)



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