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ISO 45001 and 14001 Standards EHS Management System

A Practical Approach

Presented By:
C.T. Male Associates

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Speaker Biography

Mary A. McCoy, PE, has over 20 years of environmental, health and safety experience in consulting, manufacturing and production. She is a Senior Environmental Engineer at C.T. Male Associates in Latham, New York with a B.S. in Environmental Engineering from Montana Tech in Butte, Montana. Industries in which she's worked include organic chemical, energetic materials, and vanadium production and aerospace parts manufacturing. *

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Agenda

- General overview of ISO 45001 and 14001 standards
- Discuss high impact insights and tools related to the practical application of the ISO 45001 and 14001 standards as it relates to running a business*

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Caveat and Hope

- Management system theory and its practical application is vast
- Hope:
  - Get you thinking about it
  - Give you some tools that you can use right now that will create immediate impact
- Regularly spend time learning understand management system application

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OVERVIEW

ISO 45001 and ISO 14001 Standards

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What are ISO Standards?

- Developed by the International Organization for Standardization (ISO)
- Provide frameworks for effective management systems
- Help organizations improve performance, compliance, and credibility
- Voluntary but widely adopted for regulatory alignment and business benefits

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ISO 45001 – Occupational Health & Safety (OHS) Management

- **Purpose:** Provides a framework to manage occupational health and safety risks
- **Key Elements:**
  - Leadership and worker participation
  - Hazard identification and risk assessment
  - Operational controls and emergency response
  - Performance monitoring and continuous improvement
- **Benefits:**
  - Reduced workplace injuries and illnesses
  - Compliance with legal and regulatory requirements
  - Improved worker engagement and organizational culture

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ISO 14001 – Environmental Management Systems (EMS)

- **Purpose:** Provides a framework to manage environmental responsibilities
- **Key Elements:**
  - Environmental policy and leadership
  - Planning (aspects, impacts, compliance obligations)
  - Operational controls and emergency preparedness
  - Performance evaluation and continuous improvement
- **Benefits:**
  - Regulatory compliance and risk reduction
  - Improved resource efficiency and cost savings
  - Enhanced corporate reputation and stakeholder trust

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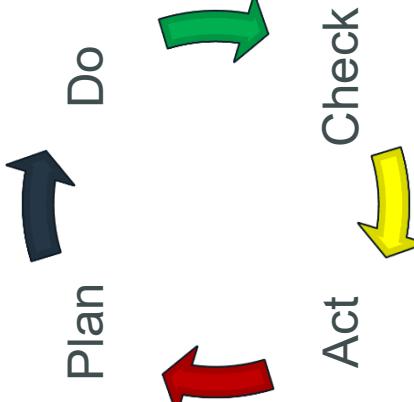
Role of Certification

- Certification is not mandatory but demonstrates commitment to best practices
- Conducted by accredited third-party certification bodies
- Involves:
  - Initial certification audit (Stage 1 & Stage 2)
  - Ongoing surveillance audits (annually or per agreed frequency)
  - Recertification audits (typically every three years)
- Business Benefits:
  - Competitive advantage in bids and contracts
  - Legal compliance and risk mitigation
  - Stronger stakeholder and customer confidence

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PDCA Cycle
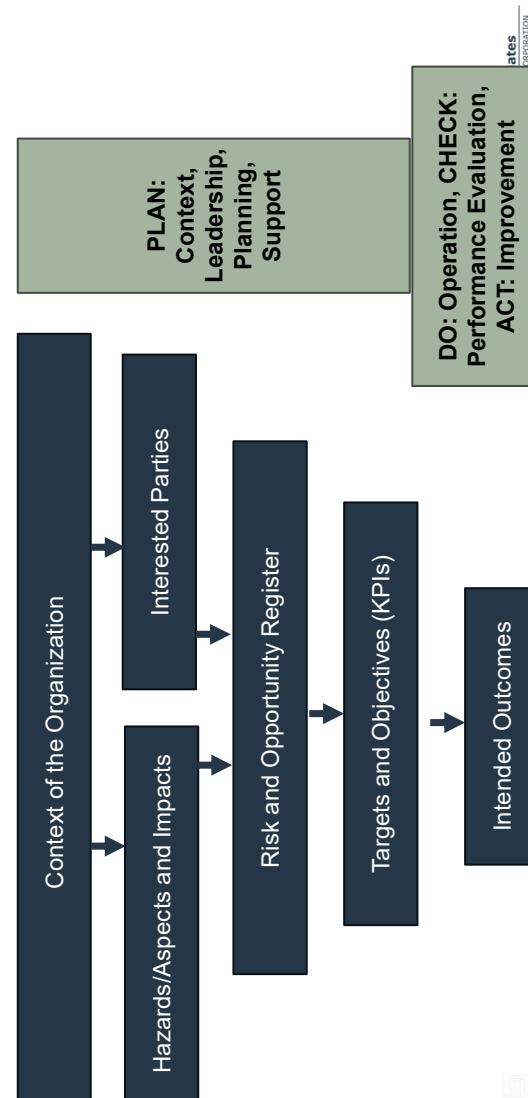
- *Management Process Steps*

- Plan
- Do
- Check
- Act

Plan

Do

Check

Act

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Types and Benefits of ISO standards

- ISO standards for a variety of activities:

  - Quality
  - Environmental
  - Health and safety
  - Energy
  - Food safety
  - IT security

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EHS Management System

Context of the Organization

Interested Parties

Hazards/Aspects and Impacts

Risk and Opportunity Register

Targets and Objectives (KPIs)

Intended Outcomes

**PLAN:
Context,
Leadership,
Planning,
Support**

**DO: Operation, CHECK:
Performance Evaluation,
ACT: Improvement**

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IMPETUS OF THIS DISCUSSION

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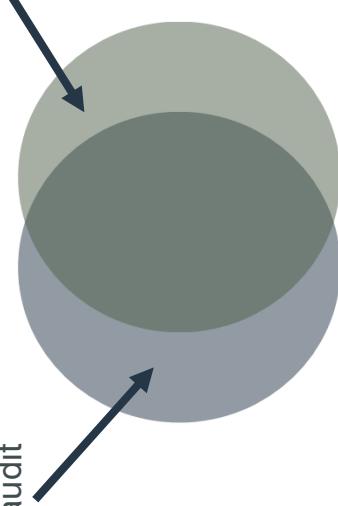
AUDIT VERSUS BUSINESS

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Audit Versus Business

Passing an
ISO audit

- Running a business
- Reducing EHS risk

The type of effort required to pass an ISO certification/surveillance audit is not consistent with the type of effort required to run a business *

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Audit Versus Business

- Cannot understand a facility at a systemic level based on a few days or a week of auditing
- Have to create deliverables to represent a model of what's happening

- EHS personnel are prone to run a management system like a compliance program
- Manage according to risk and not box-checking

- Nonetheless, **all facilities should conform to the ISO standards**
- Certification is a business decision

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EVOLVING NATURE OF EHS

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Evolving Nature of EHS

- EHS continues to become more expansive in scope
  - Combined EHS
  - Increasingly higher society and customer standards
  - ISO 14001, 45001, 50001 Energy
  - ESG: environmental, social, and governance (sustainability)
- **Additional leadership and management techniques are required**

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Leadership and Management

Historically:

- Task-master
- Effective for high risk
- Otherwise can damage:
  - Relationships
  - Ability prioritize
  - Program effectiveness

Must now include:

- Management
  - Strategy
  - Systemic Approach
- Relationship Orientation

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PRACTICAL APPLICATION

Management System Theory

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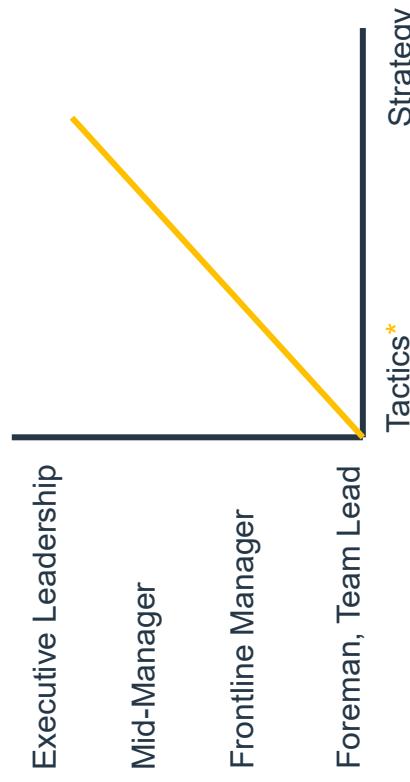
Leadership and commitment

- Top leadership must clearly ___demonstrate ownership___
- Must not appear to "push off" responsibility to front line managers or personnel
- **Auditors are sensitive to blame culture**
  - (Blame culture often corresponds with the lack of an effective corrective action program)
- **Top leadership sets high level direction and strategy**

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Strategy vs. Tactics

Executive Leadership

Mid-Manager

Frontline Manager

Foreman, Team Lead

Tactics*

Strategy

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Environmental, health and safety policy

- **Policy** describes the organization's commitments as it relates to its intended outcomes
  - **A course of action that links the mission and vision to their day-to-day activities**
- Everyone should know the policy or where to find it
- Leadership all the way to the frontline personnel

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Differences: Action Expressions

Action Expressions	Describes	Examples
Vision	A desired organizational future state	*To be the greenest and safest government-owned, civilian-operated facility*
Mission	What an organization does now	*Providing EHS leadership for government-owned, civilian-operated facilities*
Intended Outcomes	What an organization plans to achieve to realize its mission and achieve its vision	*We intend to:* • *Continually enhance EHS performance* • *Fulfill our compliance obligations* • *Achieve our EHS objectives* • *Protect workers and the environment*
Policy	The organization's commitments as it relates to its intended outcomes	*Management is committed to:* • *Protecting the environment* • *Protecting workers* • *Fulfilling its compliance obligations* • *Continually improvement EHS MS to enhance EHS performance*

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Environmental, health and safety policy

- To be most effective, leadership should have **honest conversations** with each other about the *policy* (vision, mission, intended outcomes)
  - Everyone **already has their own policy** in their head
    - EHS is EHS' responsibility
    - EHS risk should be reduced to zero (or perfection)
    - We want to do the bare legal minimum
    - We want to exceed regulatory requirements

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Environmental, health and safety policy

- **Avoid shaming for opinion differences**
- **Seek to understand**
- Make their **goals** important to you
- Express that it's important for your **goals** to be important to them
- Everyone works towards the same goals*
- **Agreement and unified front on the policy**

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Need for Teamwork

- Basis of management system effectiveness is **teamwork**
  - Teamwork is based on *relationships*
  - While the boundaries and expectations are different, the foundation of work relationships are the same as they are for other relationships:
    - Regard for the welfare of the other person
    - Trust
    - Communication *

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Organizational roles, responsibilities and authorities

- Every job title or categories of job titles should have a **clear description of their roles, responsibilities and authorities**
  - Determine what is the **best for the organization**
  - **Assign staffing** based on that allocation
  - *Knee-jerk pushing work off to others* – need to leadership in providing clarity on roles *

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Organizational roles, responsibilities and authorities (continued)

- **Centralization versus decentralization** of EHS duties:
  - Centralization: EHS personnel perform EHS work
  - Decentralization: Non-EHS personnel perform EHS work – "pushed out to the facility"
  - Doesn't matter as long as the organization executing in a conscious way
  - Caution not to create moral hazard

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Rank Risk and Opportunities

- Rank risk and opportunities
- Use a **numeric ranking** *****

Risk ID	Hazard/Situation	Potential Consequence	Probability (P)	Severity (S)	Risk Level (P*S)	Control Measures	Effectiveness of Control (1-5, 5 being most effective)	Residual Risk Level	Actions Required	Responsible Person	Target Date	Status
R001	Working at Height	Fall resulting in serious injury	3 (Moderate)	5 (Critical)	15	Harness and safety line provided and enforced, regular inspections of equipment, training provided	4	3	Review and improve fall protection training, conduct more frequent equipment checks	John Smith	3/15/2024	In Progress
R002	Chemical Spill (Cleaning)	Skin irritation, respiratory problems	2 (Low)	4 (Major)	8	Use of appropriate PPE (gloves, goggles), proper ventilation, safety data sheets available	3	3.2	Ensure all cleaning chemicals are correctly labelled and stored, provide refresher training on chemical handling	Jane Doe	2/28/2024	Completed
R003	Operating Forklift	Collision with pedestrian or object	4 (High)	5 (Critical)	20	Designated forklift routes, speed limits, pedestrian awareness training, pre-use checks	5	0	Implement a near-miss reporting system, review traffic management plan	David Lee	4/30/2024	Planned
R004	Manual Handling (Lifting)	Back injury, muscle strain	3 (Moderate)	3 (Major)	9	Manual handling training, use of lifting aids, job rotation	2	5.4	Conduct a manual handling risk assessment, provide additional lifting aids	Sarah Jones	3/31/2024	In Progress
R005	Slips, Trips, and Falls	Minor injuries, fractures	4 (High)	2 (Moderate)	8	Regular cleaning, clear walkways, non-slip footwear policy	3	3.2	Improve cleaning schedules, install better lighting in certain areas	Michael Brown	2/15/2024	Completed

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Compliance Obligations

- **Rank compliance risks**
  - Direct harm versus administrative violation
  - Even though it all must be done:
    - Understand the greatest risk:
      - Work on those first
      - Assign more resources
      - Greater level of effort*

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Use a Risk and Opportunity Matrix

Risk Assessment Matrix

Likelihood	Severity			
	4 (Catastrophic)	3 (Critical)	2 (Limited)	1 (FAO)
5 (Frequent)	20	15	10	5
4 (Probable)	16	12	8	4
3 (Occasional)	12	9	6	3
2 (Remote)	8	6	4	2
1 (Improbable)	4	3	2	1

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Resources

- The organization must provide the resources to achieve its _chosen_ objectives
  - **The EHS MS and its implementation must include a process to navigate the risk of insufficient resources**
  - **Estimate the hours required to perform the work**

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Operational Planning and Control

- The processes and procedures must be:
  - Interrelated
  - **Proportional to the risk and opportunity**
  - **Cannot write a process or procedure for everything**
  - **Address the need for deviations**

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Internal Audit

- Assessment of:
  - How well the EHS MS is functioning to achieve its intended outcomes
  - Not just in terms of are personnel following the rules
  - If the organization is doing what it says it's going to do in its policies and procedures
    - Certified MS do not allow deviations
    - Running a business – have a controlled process to evaluate and allow certain deviations

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Internal Audit

- Audits are not compliance inspections
  - Although compliance inspections are part of audits
- The intent of audits:
  - Gather data that can be trended for continual improvement or corrective action
  - Develop a personal systemic understanding of activities

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Internal Audit

- Use approaches like:
  - "Gemba Walks"
    - To eliminate waste from the EHS process
  - Continual improvement
  - GE Operational Learning Event*

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Management review

- Top management should review at planned intervals how well the organization is meeting its objectives and intended outcomes
- High level review covering **trends and high risk**
- Management review is also **"the many conversations"**
- **Still recommend the formal, documented review**

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Non-conformity and corrective action

- A process to address negative outcomes
- Requires an investigation and root cause analysis
  - **Investigations for EHS incident MS root causes and performance issues are separate**
- Root cause is a system deficiency
  - **Not 'operator error' or equipment malfunction**

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Organizational & Management Failures

- - Lack of Training
- - Lack of Procedures
- - Poor Enforcement of Policies
- - Inadequate Supervision
- - Production Pressure
- - Poor Communication
- - Lack of a Safety Culture
- - Failure to Learn from Past Incidents
- - Inadequate Staffing
- - Lack of Emergency Preparedness

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Design & Engineering Deficiencies

- - Poor Equipment Design
- - Lack of Safeguards
- - Ergonomic Hazards
- - Improper Maintenance
- - Use of Incorrect Materials

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Human & Behavioral Factors

- - Lack of Awareness
- - Complacency
- - Fatigue
- - Rushing or Cutting Corners
- - Risk-Taking Behavior

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Environmental & External Factors

- •- Unsafe Work Conditions
- •- Weather-Related Hazards
- •- Third-Party Contractors
- •- Supply Chain Issues
- •- Regulatory Non-Compliance

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Non-conformity and corrective action

- • NC/CA system should include trending
- • **Root causes**
  - • Elements
- • Trending prevents:
  - • Fire fighting
  - • Allows for strategizing
- • GE Operational Learning Event

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What is a Non-Conformance

- **Definition:**
  - A **non-conformance** is a deviation from:
    - The organization's established safety policies and procedures.
    - The requirements of ISO 45001 or other applicable safety standards.
    - Regulatory or legal safety obligations - **maybe**

- **Types of Non-Conformance:**
  1. **Major Non-Conformance** – A **significant failure** in the system that affects safety performance, such as lack of hazard controls or absence of risk assessments.
  2. **Minor Non-Conformance** – A **smaller deviation** that does not immediately compromise safety but requires correction, such as incomplete training records or missing documentation.

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Continual improvement

- **Often neglected process***
- Should be informed by other processes such as trends in:
  - Non-conformance and corrective action root cause trends
  - Auditing
  - Monitoring and measuring
  - Stakeholder feedback

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Management Systems

- Choose what works for you:
  - ISO Standards
  - VPP
  - OSHA Guidelines
  - Any management book

- https://www.osha.gov/safety-management/explore-tools

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Summary

- The effort to pass a certification or surveillance audit is not always the same as running a business
- All facilities should conform to ISO 45001 and 14001
- The evolving nature of EHS requires different leadership and management abilities than in the past
- The EHS Policy starts with honest discussion
- The basis of high productivity is teamwork

- Assign EHS roles and responsibilities based on what's best for the organization
- Centralization versus decentralization is a strategic decision
- Use a numeric ranking for physical and compliance risks
- Use a risk and opportunity matrix to drive the entire program
- Estimate the hours required to perform the work
- Procedure are a means to an ends

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Summary

- Include operational learning events or Gemba walks in your internal audit
- Root cause is a system deficiency
  - Not 'operator error' or equipment malfunction
  - Trend root causes
- Don't forget Continuous Improvement

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Questions?

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