

Integrated Management Systems

BCA ENVIRONMENTAL CONSULTANTS

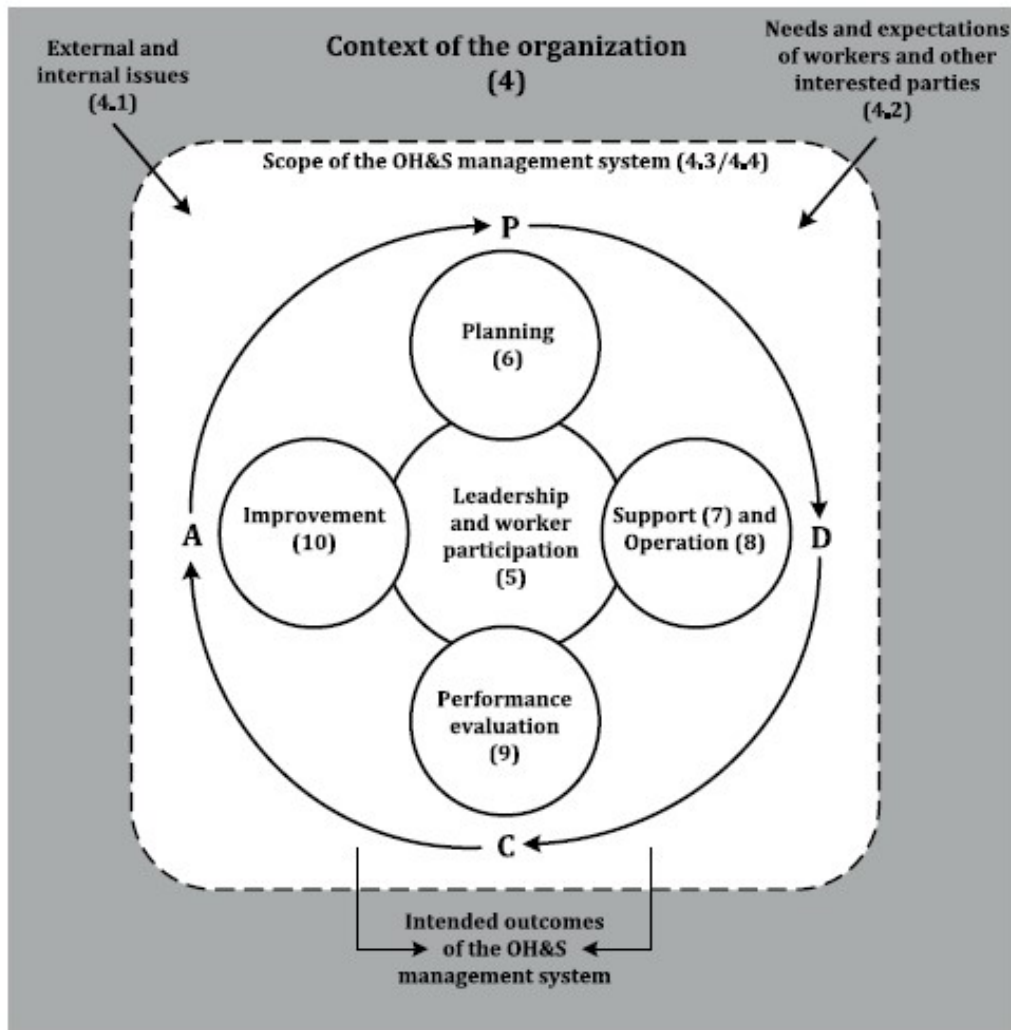
MARCH 28, 2023



What is a Management System

Made up of Consistent and Managed

- Policies
- Processes
- Procedures (SOPs)
- Work instructions
- Implementation
- Audits
- Training



Plan,
Do,
Check,
Act

Plan

Do

Check

Act



Integrated Common Structure

45, 14, 50 and 9



Slide 5

- TD1** Branch out Section 6. Hazard assessment vs impacts/aspects vs Energy
Tony DeMarco, 2/11/2021
- E1** I think it is ok as is, the idea is there (i am not going to spend much time on 50000)
Elizabeth, 2/11/2021
- TD2** Branch off resources for things additional in 9001?
Tony DeMarco, 2/11/2021
- E2** Same, i think it is fine as is. I will try to remember to make a comment that we are focusing on the similarities but there are subtle differences from one standard to another
Elizabeth, 2/11/2021

Section 6 Across Standards

45001

Hazard Identification

Legal and Other

Planning Action

Objectives

14001

Environmental Aspects

Compliance Obligations

Planning Action

Objectives

50001

Objectives

Energy Review

Energy Performance Indicators

Energy Baseline

Energy Data Collection

9001

Addressing Risks and Opportunities

Objectives

Planning Changes

Focus on a Topic: Hazards, Aspects and Energy Users



1) What does the Standard say?



**2) Guidance on Implementation
and Program Maintenance**

45001 Approach: Process and Position

ASPECTS, HAZARDS AND ENERGY USERS



Process/Area – Tank Farm

Activity	Aspect (14)	Hazard (45)	Energy User (50)
Loading and Unloading Tank Trucks and Storage	Spill/Release Air Emissions (Solvent) Chemical Storage	Slips, Trip or Fall Chemical Exposure Flammability Exposure to plant traffic	Pumps – electricity Lights
Controls			
Contained and Covered Storage Area Maintained Equipment Liquid Level Monitors Spill Release Response Plan SOP Training		Platform PPE Hazard Communication Confined Space Eye Wash Station SOP Training	Motion sensors Solar Powered Pump

Position – Process Tech

Activity	Aspect (14)	Hazard (45)	Energy Use (50)
Operating Overhead Crane	<ul style="list-style-type: none"> Spill/Release 	<ul style="list-style-type: none"> Slips, Trips and Falls Falling objects 	<ul style="list-style-type: none"> Electricity
Operating Forklift	<ul style="list-style-type: none"> Spill/Release Air Emissions 	<ul style="list-style-type: none"> Collision – Injury Collision – Property Damage Falling Objects 	<ul style="list-style-type: none"> Electricity Propane
Mold Cleaning – Dry Ice	<ul style="list-style-type: none"> Particulate 	<ul style="list-style-type: none"> Noise Flying Objects Burns Asphyxiation Repetitive motion 	<ul style="list-style-type: none"> Air
Mold Maintenance	<ul style="list-style-type: none"> Air Emissions 	<ul style="list-style-type: none"> Flammables Voltage Pinch point 	

Common Structure 45, 14, 50, 9

TD3
E3



Slide 11

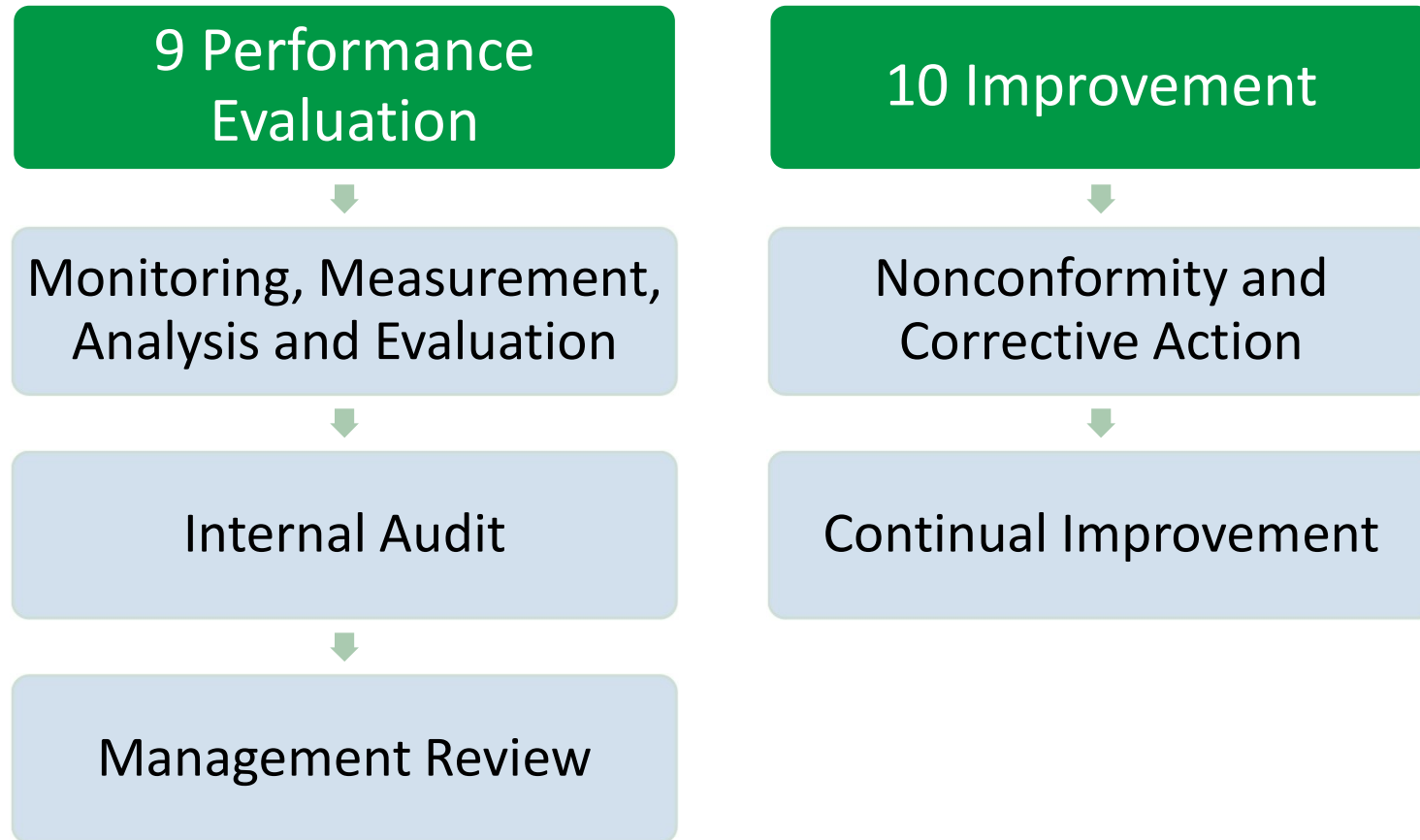
TD3 Branch out Section 8, Work participation, MOC, energy, design developemnt
Tony DeMarco, 2/11/2021

E3 i would remove 8 from this slide, and move the current slide 9 to #8 and then cover 9 and 10 together...
Elizabeth, 2/11/2021

Section 8 Across Standards



Common Structure 45, 14, 50, 9

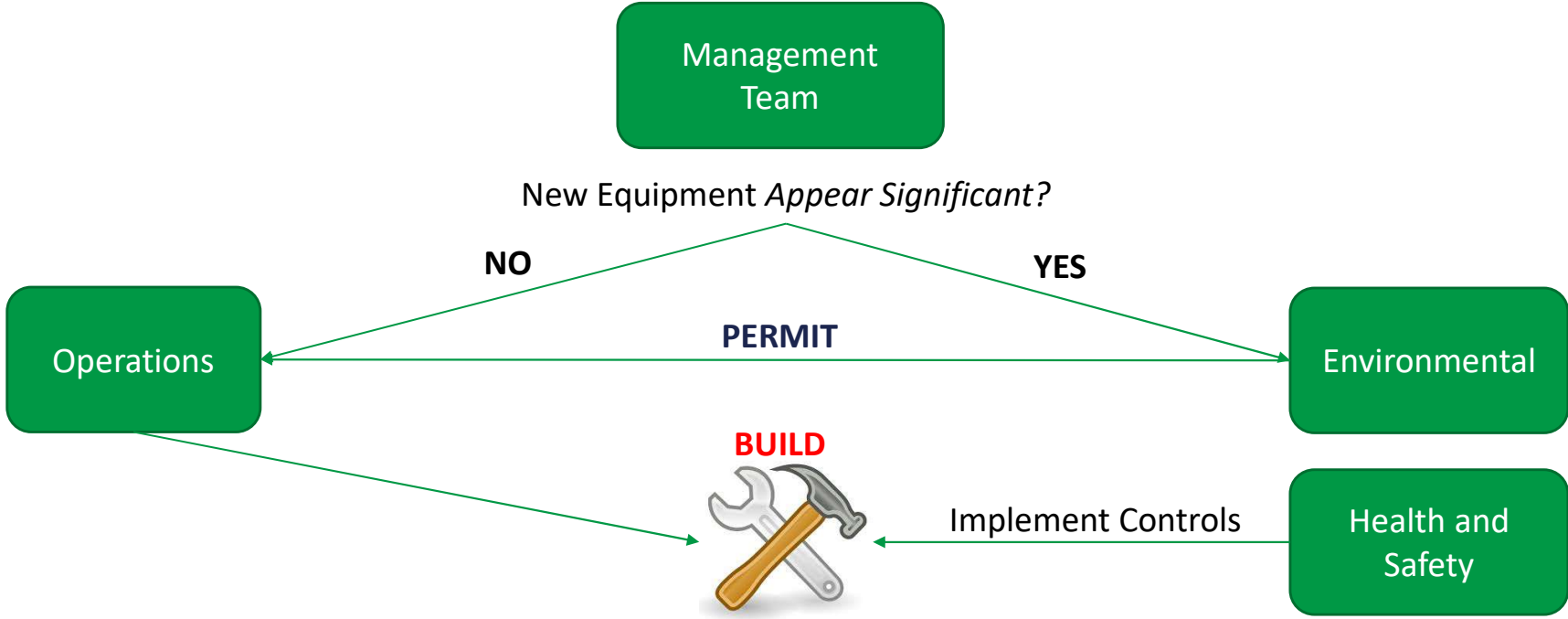


Advantages to an Integrated System

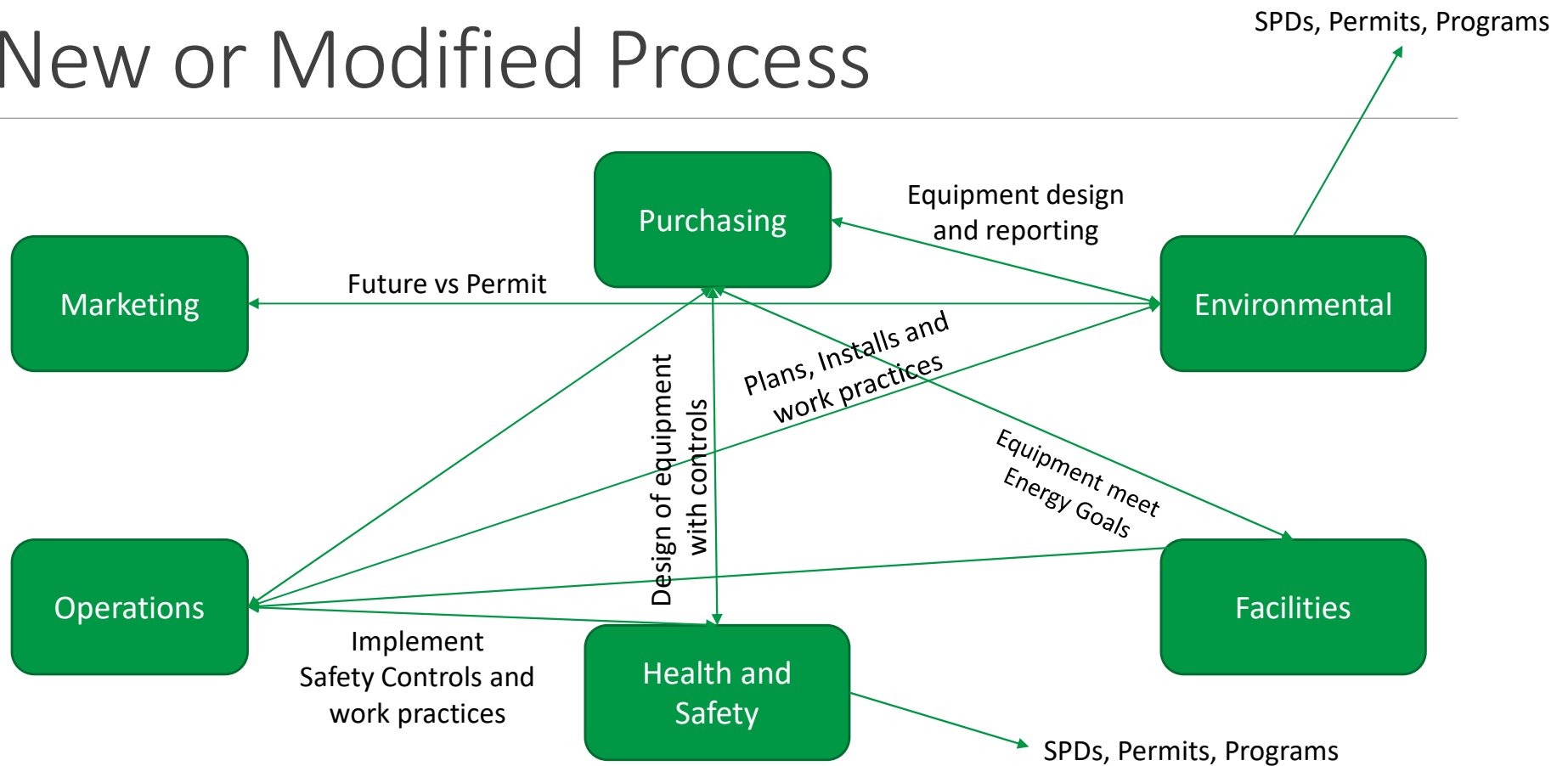
1. Many of these items likely already exist in your operations one way or another.
 - Incident Investigation
 - Nonconformity and CA
 - Emergency Preparedness (EAPs, SPCCs, Contingency Plans, etc...)
 - Documented Information
 - Communication (Top Down and Bottom Up)
2. Cross Functionality Reduces Risk
 - Full MOC process takes place for Quality, Safety and Environmental

New or Modified Process

Common New Equipment Process



New or Modified Process




Evaluate Limits

Periodically review limits and/or include limits in marketing and production meetings and projections.

Ask:

- Do they still make sense?
- Are we risking violation?

Evaluate:

- Will the limits constrain us?
 - What are our options?
 - How much do those options cost?
 - Should we make pre-emptive moves now before we hit a time crunch?
- 

Mini Case Studies

8-1-6 (Coating Plastic Parts)

Key Takeaway:

Evaluate projected growth against existing limits – Run the numbers.

Scenario:

Company A produces a “luxury good”. Incomes are rising (or less threat of decline), economy is growing, and employment rates are down, so production is expected to continue to rise.

Latest quarterly report shows 24.7 tons over the last 12-months at a facility with an 8-1-6 limit of 25 tons per 12 months.

Limited cash and financial philosophy is to keep debt to a minimum

Outcome:

Render 8-1-6 applicable and take a daily weighted average of lb/gal VOC content of materials used, rather than a control device.

Waste to Production Tracking

Key Takeaway:

Collaboration requires consistent communication

Scenario:

Company B is a steel mill requiring a massive scrubber system consisting of two (2) 300,000 gallon thickener tanks. Wastewater is transported to a pretreatment system. Company B wants to establish a metric for # steel making heats per filter press load. Data must be communicated back and forth each day.

Outcome:

Over time a metric has been developed of 3 steel making heats per filter press load. This is communicated at the steel making and pretreatment divisions daily. Pretreatment has live metered readings for % solids of effluent and flow rates.

Achievement of the 3:1 goal is color indicated each day. If the goal is not met, a corrective action process between operations, maintenance, pretreatment and environmental.

Safe Environmental Practices

Key Takeaway:

Environmental activities sometimes lay outside the scope of the Safety program.

Scenario:

Company C operates a MACT baghouse collecting hazardous waste that requires maintenance and bag replacements. Historically SPDs including a safety hazard analysis have not been completed for such environmental related activities.

Outcome:

Collaboration between the departments led to a proper SPD being implemented detailing requirements for things such as:

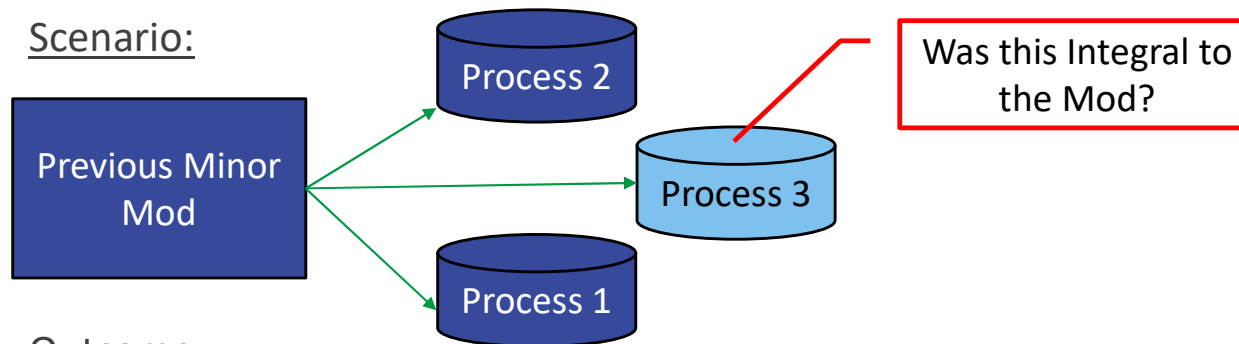
- Proper disposal of hazardous waste
- Respirator and other applicable PPE
- Training requirements (RCRA, fit testing)
- Permitting (Confined Space, working at heights)

Unpermitted Units and Circumvention

Key Takeaway:

Evaluate each construction for permitting requirements

Scenario:



Outcome:

Avoid circumvention because Process 3 was not integral with the emission units permitted in the Minor Modification. Process 3 permitted as a Trivial Activity

Management of Change

Key Takeaway:

Communicating changes made by various departments can trigger EHS required actions.

Scenario:

Company D changed from cleaning the exhaust system with water blasting to walnut shells blasting, then to corn cob blasting. This provides a better and quicker cleaning process of the exhaust system and fans. Several contractors are involved with the maintenance activity and there is some foot traffic in the area.

Outcome:

A Management of Change was not entered into the companywide safety MOC system. It is a neglected system and has not received buy in from employees yet. The company environmental department does not monitor the MOC system since it is housed in the 45001 program.

1. The original plan for walnut shells was met with some backlash due to potential effects on those with nut allergies, thus the eventual switch to corn cob blasting.
2. The change to a dry blast compared to wet blasting resulted in more particulate being left in the exhaust system since end of work cleaning protocols were not re-evaluated with the change from wet blasting to dry blasting. Improper clean-up led to a concerned visual emissions event after start-up of the system.

Focus on a Topic: MOC



1) What does the Standard say?



**2) Guidance on Implementation
and Program Maintenance**

Vendor Communications

Key Takeaway:

Always verify inputs to emission calculations

Scenario:

Company B coats plastic parts for general industry.

A new unit was permitted 5 years ago. It was similar to the existing units, so the coating content from the last modification was used.

Since then the supplier changed HAP content without explicit notification to their customer.

Outcome:

Increased HAP content should have triggered Subpart P PPP applicability 5 years ago and no limit was applied to the source.

Focus on a Topic: Corrective Action and Verification of Effectiveness



1) What does the Standard say?



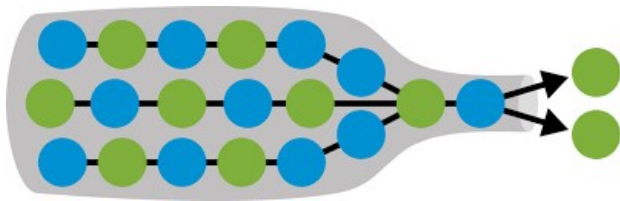
2) Guidance on Implementation and Program Maintenance

Collaboration

Why Should Environmental, Operations, Purchasing and Marketing Collaborate?



1) Don't restrict growth by permit and evaluate violation risks



2) Align projections and operational capabilities with permit and evaluate controls

Collaboration

Why Should Environmental, Operations, Purchasing and Marketing Collaborate?



3) Communicate to interested Parties (i.e. Suppliers)

Including Environmental in Decisions

Why Involve Environmental Early on in collaboration with other internal parties?



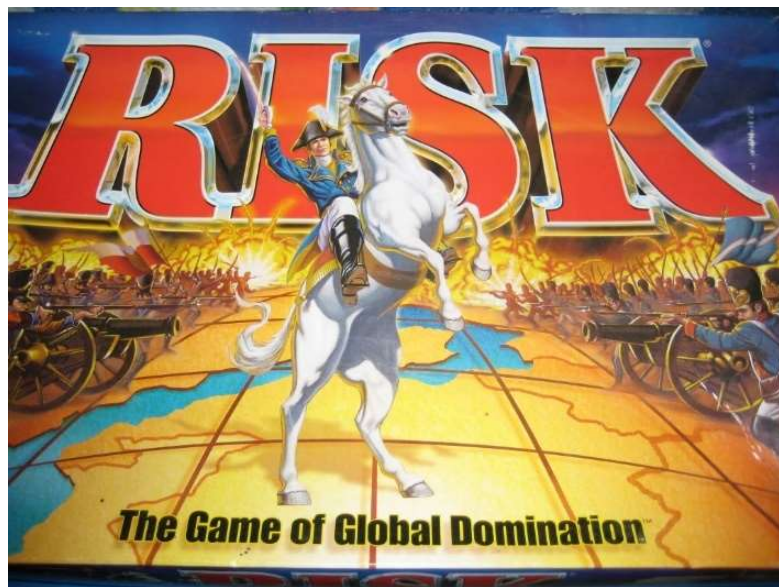
1) PRELIMINARY CALCULATIONS
Estimate Timing to Construct



2) PREVENT UNPERMITTED UNITS

Management Involvement

Why Involve Environmental, Health and Safety Early on in collaboration with other internal parties?



3) LIMIT RISK