

A Roadmap for Addressing ISO 14001:2015 Requirements



Including the Associated EMS Documentation

Date: December 11, 2018

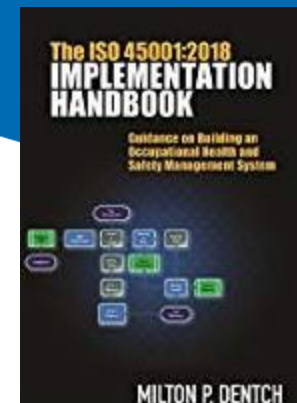
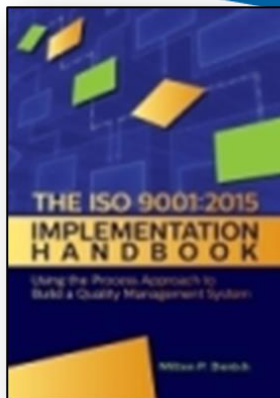


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About Milt Dentch

- Consultant at MPD Consulting on ISO requirements for quality, environmental, and safety management systems
- Conducted over 500 audits for large and small companies
- Diverse client background from a floating oil rig in the Gulf of Mexico to a 4,000 employee electronics manufacturer in Ukraine
- Past roles include: an engineer for the paper industry; manager at the Polaroid Corporation and the Furon Corporation
- BS in mechanical engineering from Worcester Polytechnic Institute
- MS in Total Quality Systems from the National Graduate School of Quality Management
- An Exemplar Global lead auditor (QMS and EMS)
- The author of *The ISO 9001:2015 Implementation Handbook*, *The ISO 14001:2015 Implementation Handbook* and *The ISO 45001:2018 Implementation Handbook*



Goals of Webinar

- Provide Guidance for ASQ EED Members and Other Interested Parties interested in Certifying to ISO 14001:2015 with the focus on “How” to meet the EMS ISO requirements.
- Learn how to meet each requirement with emphasis on the documentation starting with an EMS Manual



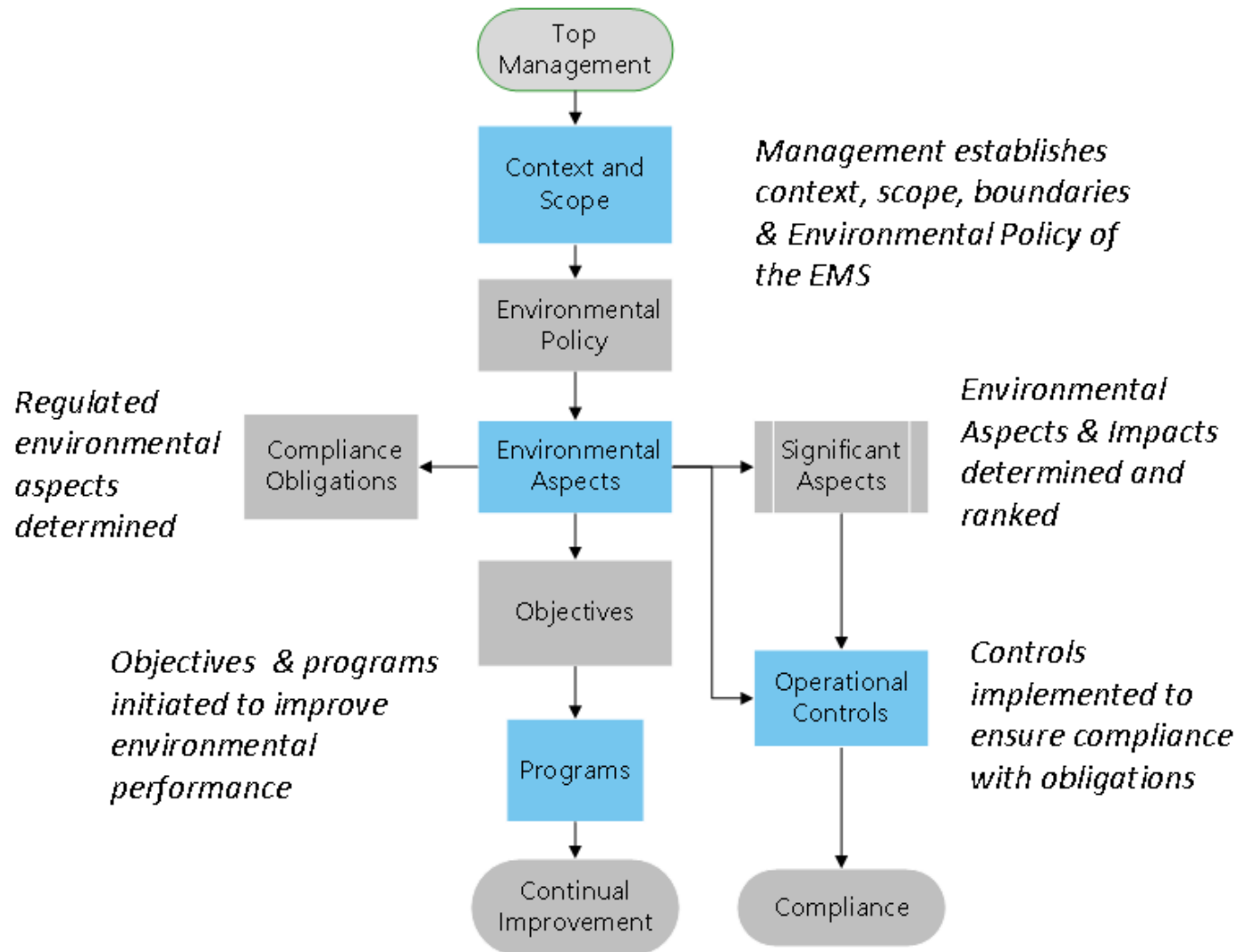
Energy and Environmental
DIVISION



Agenda

- ISO 14001:2015 as a Process;
 - The Core Elements of ISO 14001:2015
 - Documenting the Requirements
 - Q&A.
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- **Changes from ISO 14001:2004 are in bold face**

EMS/ ISO 14001:2015 as a Process

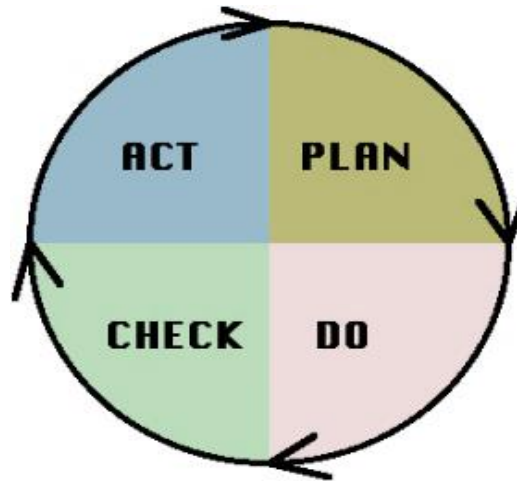


ISO 14001:2015 Support Processes

- Documentation
- Communication
- Risk Planning
- Emergency Planning
- Training
- Internal Audit
- Incident Investigation
- Corrective Action
- Management Review
- Improvement

Plan- Do- Check- Act

Put in the context of environmental management, the PDCA approach works as follows:



PLAN

Plan: Review and identify the organization's environmental issues and commitments. Define the processes and activities with environmental impacts; the objectives, targets and action plans to improve the company's environmental performance – all in line with the company's policy and commitments.



DO

Do: Implement the environmental management action plans and environmental controls.



CHECK

Check: Monitor and measure the processes and operations against the company's objectives and report the results.



ACT

Act: Take actions to improve the environmental performance on an ongoing basis, making adjustments as indicated by the checks.



ISO 14001:2015 Clauses

4: Context of the organization

5: Leadership

6: Planning

7: Support

8: Operation

9: Performance evaluation

10: Improvement

Clause 4: Context of the organization

4.1 Understanding the organization and its context

4.2 Understanding the needs and expectations of interested parties

4.3 Determining the scope of the environmental management system

4.4 Environmental management system

Context & Interested Parties

Clause 4.1: Understanding the organization and its context

“The organization shall determine the external and internal issues relevant to the organization’s purpose.”

Clause 4.2: Understanding the needs and expectations of interested parties:

“The organization shall define the interested parties and their needs and expectations relevant to the organization’s environmental management system.”

“Context & Interested Parties” Explained

Organizations are required to analyze its operations and environmental impact from a holistic, proactive vantage point when establishing its scope of activities and operating controls

Clause 4: Context, Scope and Boundaries

Clause	Title	Focus of Clause	Sub Clauses
4	Context of the Organization	Provide a strategic understanding of all the factors affecting the way the organization manages its environmental responsibilities.	Context, scope and boundaries of the EMS.

Scope:

The scope is what the organization does; the products or services the organization provides.

Boundaries:

The scope of the environmental management system needs to define the spatial and organizational boundaries to which the environmental management system will apply, especially if the organization is a part of a larger organization at a given location. How many sites (building addresses) are under the scope? Who owns the property?

Examples of Context

Context is how the organization's type business can influence its environmental performance.



Context: Discreet Manufacturing

Company manufacturing machined parts, plastic parts or stampings (discreet manufacturing) may have impact on choice of materials and reuse, recycling of materials to avoid damage to the environment



Context: Process Based Company

Company producing processed materials (chemicals, paper, metals, or providing utilities, energy) will have impact on climate change and potential improvement or damage to adjacent land, the atmosphere and waterways



Context: Consumer Products

Company producing consumer products may have impact on product disposal and potential improvement/damage to the environment



Examples: Interested Parties

Who may be the interested parties relative to the context of the organization?

- Consumer products: customers related to end-of- life disposal
- Discreet manufacturers: community landfills, incinerators; customers
- Processed materials: Utilities: community; neighbors; customers

NOTE: Regulatory bodies and customers are always very interested parties!!

Examples: External/ Internal Issues

External Issues	Internal Issues
<ul style="list-style-type: none">- Customers- Regulatory agencies- Product sectors- Neighbors- Community- Climate Change-- Life Cycle, disposal- Voluntary Labeling- Eco- friendly materials	<p>Equipment:</p> <ul style="list-style-type: none">- Age, condition- Maintenance <p>Employees:</p> <ul style="list-style-type: none">- Training- Turnover- Skill- Language

Evidence of Conformance: Context/ Interested Parties

The organization needs to present documented evidence (worksheet, reports) that the *context and expectations of interested parties* were considered when establishing the scope and improvement objectives of their EMS.

Worksheet: External Issues

Possible External Issues	Y/N	Comments/ Actions
Customers	Y	<i>Restrictions on PVC</i>
Regulatory agencies	Y	<i>Annual EPA , MADEP Review</i>
Product sectors	Y	<i>Bluesign® Textile certification</i>
Neighbors	Y	<i>Loading Dock noise</i>
Community	Y	<i>EHS manager meeting with fire department</i>
Climate Change	Y	<i>Developing CO2 Data base</i>
Life Cycle-product disposal	N	
Voluntary Labeling	N	
Eco- friendly materials	Y	Reduction of solvent use 2018 Program

Worksheet: Internal Issues

Possible Internal Issues	Y/N	Comments/ Actions
Equipment age	Y	New Reactor- FY 2018
Equipment maintenance	Y	Outsourced PM plan under review
Employee training	Y	Companywide skills/ training review
Employee skill	Y	As above
Employee language	Y	ESL continues 2018
Employee turnover	Y	High Priority Program/ Risk 2018

4.4 Environmental Management System

“To achieve the intended outcomes, including enhancing its environmental performance, the organization shall, establish, implement, maintain and continually improve its environmental management system, including the processes needed and their interactions, in accordance with the requirements of this International Standard.”

Satisfying all the clauses of ISO 14001:2015 will provide evidence that the organization is conforming to clause 4.4. A “Process/ Interaction Chart is not required.

Clause 5 Leadership

5.1: Leadership and commitment

5.2: Environmental policy

5.3: Organizational roles,
responsibilities and authorities

Clause	Title	Focus of Clause	Sub Clauses
5	Leadership	Ensure commitment, responsiveness, active support and leadership from the organization's top management	Roles, responsibilities and authorities, Environmental Policy

Top management commitment

Clause 5.1: Leadership and commitment

“Top management shall demonstrate leadership and commitment with respect to the environmental management system to ensure the environmental policy and environmental objectives are established, compatible with the **strategic direction and the context of the organization.**”

Expanded top management commitment- Explained

Emphasizes top management's need to support the EMS and integrate the EMS into the organization's business planning and strategy



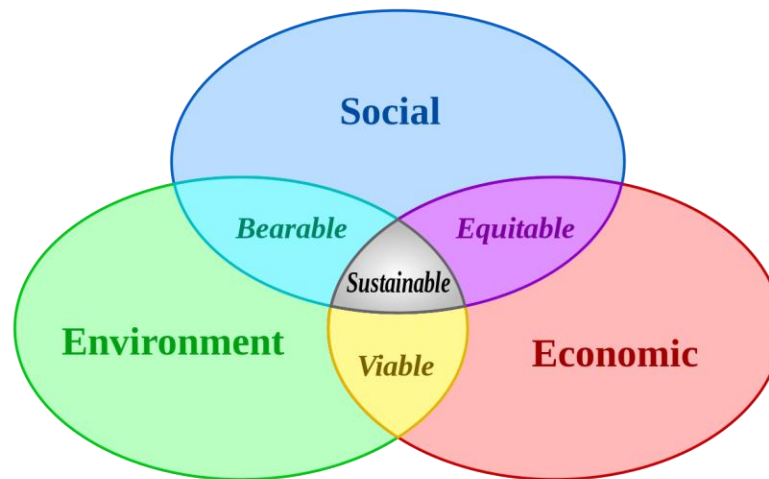
Integration of EMS requirements into the Business

Clause 5.1 Leadership and commitment:

*Top management shall demonstrate leadership and commitment with respect to the environmental management system to ensure the **integration of the environmental management system requirements into the organization's business process.***

Integration of the EMS

Top management is required to consider the strategic direction, business processes and the context of the business when establishing its environmental policy, objectives and controls.



Evidence of Conformance: Integration

The KPIs (key performance indicators) or objectives assigned to quality and business parameters could also include:

- Environmental metrics of hazardous waste reduction, material recycle and utility use, waste minimization;
- The quality waste reduction projects impact on improved environmental performance.

5.2: Environmental Policy

“Top management shall establish, implement and maintain an environmental policy that is appropriate to the purpose and context of the organization and provides a framework for setting environmental objectives.”

The environmental policy shall include:

- A commitment to the protection of the environment and prevention of pollution;
- A commitment to fulfil its compliance obligations;
- A commitment to continually improve its environmental management system

5.2: Environmental Policy- Example

The *Company* will conduct our operations in a way that is protective of the environment. We will maintain an environmental management system that will serve as a framework to achieve the following goals:

Regulatory Compliance

We will identify, evaluate, and comply with all applicable federal, state and local environmental laws and environmental requirements of our customers as well as industry standards as applicable.

Prevention of Pollution

We will seek, first to cost-effectively avoid the creation of pollution and waste from our operations, and second, to manage remaining waste through safe and responsible methods. **We will strive to reduce the company's carbon footprint.**

Conservation

We will strive to diminish our consumption of natural resources, using sustainable resources where possible. We will strive to improve our environmental performance

Company President

July 4, 2018



5.3: Organizational Roles, Responsibilities & Authorities

- Management provides resources
- Defined roles, responsibilities & authorities
- Environmental “**Management Representative**”
 - Appointed by Management
 - Manages the EMS
 - Makes recommendations

NOTE: Management Representative title not required in ISO 14001:2015, but responsibilities, authorities need to be defined for assigned personnel.

Responsibilities & Authorities Defined

Responsibility is the obligation of a subordinate to perform the duty as required by his or her supervisor.

Authority is the power assigned to an executive or a manager in order to represent the company for issuing or approving reports or communications; or releasing shipments.

Responsibilities & Authorities Defined

Responsibility is the obligation of a subordinate to perform the duty as required by his or her supervisor.

Authority is the power assigned to an executive or a manager in order to represent the company for issuing or approving reports or communications; or releasing shipments.

Examples include:

Responsibility to report the performance of the EMS;

Maintain waste water controls;

Authority: for Communicating with Regulatory bodies and the public; releasing hazardous waste manifests;

Approving reports to regulatory bodies.



Examples: Top management commitment

- Do members of top management attend Environmental Management Reviews?
- Is the “Management Representative” a member of the senior staff?
- Does management provide support for resources necessary to maintain and improve the environmental management system?

Clause 6: Planning

6.1: Actions to address risks and opportunities

6.1.1: General

6.1.2: Environmental aspects

6.1.3: Compliance obligations

6.1.4: **Planning action**

6.2: Environmental objectives and planning to achieve them

6.2.1: Environmental objectives

6.2.2: Planning actions to achieve environmental objectives

Clause 6: Planning

Clause	Title	Focus of Clause	Sub Clauses
6	Planning	Ensure that the organization is able to achieve the intended outcomes of its environmental management system, to prevent or reduce undesired effects, and to achieve continual improvement.	Actions to address risks and opportunities; Environmental aspects; Compliance obligations; Planning action; Environmental objectives; Planning actions to achieve environmental objectives;

Actions to address risks and opportunities

Clause 6.1.1: Actions to address risks and opportunities

The organization shall establish a process to determine the risks and opportunities related to its environmental aspects, compliance obligations and give assurance that the environmental management system can achieve its intended outcomes.

Risks and opportunities- Explained

Top management needs to ensure that the organization is able to achieve the intended outcomes of its environmental management system, to prevent or reduce undesired effects, and to achieve continual improvement by assessing and mitigating risks.



Evidence of Conformance:

Actions to address risks

Processes the organization could use to assess risks related to its identified environmental aspects and compliance obligations:

- Significant Environmental Aspects ranking criteria
- Failure Mode Effect Analysis (FMEA)
- SPCC, SWPPP, ICP

(SPCC) Spill Prevention, Control and Countermeasure

(SWPPP) Storm Water Pollution Prevention Plan

(ICP) Integrated Contingency Plan



Risk Criteria: Significant Environmental. Aspects

Frequency		Pts.	Severity		Pts.
Continuous	Daily or multiple times during a week	5	Catastrophic	Does Aspect have the ability to affect the community or public perception of the company?	5
Repeated	Occurs at least once per month	4	Regulated	Is this Aspect covered in a permit or regulated by law?	4
Regular	Occurs at least once per quarter	3	Serious	Some negative but reversible impact on the environment	3
Intermittent	Occurs about once per year	2	Moderate	Minimal impact on environment; spill or release contained on site	2
Seldom	Occurs accidentally or rarely	1	Harmless	Impact not significant, spill or release contained in immediate vicinity	1

Risk Analysis: “FMEA” Approach

Aspect	Potential Failure	Env. Impact	Present Controls	New Controls?
Solvent Paint Booth	Use unapproved Paint	Exceed VOC limits	Purchase order approval and COA	<i>QA certifies paint released to department</i>
Solvent Paint Booth	Fire/explosion	Discharge of solvent fumes	P.M. of static connections	<i>Install in-duct gas monitor</i>

Risk Analysis: Compliance/ Operations

Regulated Aspect	Potential Failure	Actions to reduce exposure
Air Discharges from paint/ mix booths	Report not issued to MA DEP	<i>Create Compliance Calendar w/ email notifications</i>
Air Discharges from boilers and generators	Boiler malfunction	<i>Increase P.M.</i>
Air Discharge- dust filter	Blown filter	<i>Install gages to measure filter life</i>
Oil Storage: Generator, Boiler Maintenance	Oil Spill	<i>Test SPCC plan more frequently; Add spill kits</i>

Risk Analysis: Preventive Actions

ISO 14001:2015 does not have a requirement for “preventive action”. The thought is the entire environmental management system is *preventive* in nature and the risk analysis approach is also preventive.

Clause 6.1.2 Environmental Aspects

“The organization shall determine the environmental aspects of its activities, products and services that it can control and those that it can influence, and their associated environmental impacts, considering a life cycle perspective. When determining the environmental aspects, the organization shall consider changes, including planned or new developments, and new or modified activities, products and services.”

Clause 6.1.2: Environmental Aspects

- Storage of oil
- Unloading of Chemicals
- Air discharge from oil fired boiler
- Fertilizing of lawn
- Waste water discharge from plating line
- Noise generated by trucks at loading dock
- Disposal of office waste

Clause 6.1.2: Environmental Aspects Example

#	Media	Activity/ Aspect	Possible Environmental Impact
1	Air	Solvent based paint booth ops.	Discharge of Volatile Organic Compounds
2		Mix Booth operation	Discharge of VOCs
3		Emergency Generator- Diesel	Discharge of VOCs
4		Emergency Generator- Diesel	Damage to groundwater or soil
5		Plant maintenance- aerosol cans	Discharge of VOCs
6		Chiller operation	Discharge of Ozone Depleting Substances
7		Dust Filter	Discharge of particulate matter
8	Water	Roof/ parking lot rain water	Damage to groundwater or soil
9		Sanitary drains	Discharge to POTW
10	Waste	Disposal of Mix Booth waste	Land contamination

Environmental Aspects- Ranking

“The organization shall determine those aspects that can have a significant environmental impact, i.e. significant environmental aspects, by using established criteria”

#	Aspect	Freq.	Severity	Score
1	Paint booths- air	5	4	20
2	Mix Booth -air	2	4	8
3	Emergency Gen. air	2	4	8
4	Mix Booth- waste	3	4	12

Multiplying the frequency times the severity ranks the aspects. Arbitrarily setting >12 score would allow the first pass at establishing the Injection Molding operation's SEA's

6.1.3: Compliance obligations

“The organization shall determine and have access to the compliance obligations related to its environmental aspects and determine how these compliance obligations apply to the organization.”

- *Based upon identified Environmental Aspects.*
- *List of applicable Regs at Federal or state level.*
- *Process to maintain list as up to date.*
- *Provide process to monitor compliance with applicable regs.*
- *Requirements of other parties (corporate, industry, customer).*

6.1.3: Compliance obligations- Examples

Environmental Aspect	Regulatory Source	Applicable Regulation	Requirement	Permit/ Plan
Air Discharges (paint booth, mix booth, aerosol cans)	EPA – 40 CFR 60 and/or 63	To prevent, control, abate and limit the emissions of toxic air pollutants into the ambient air	If >25 tons per year of VOCs, application of air pollution control equipment required	NA: Maintain record of solvent use and report to MA DEP
Oil Storage (boiler, maintenance)	EPA – 40 CFR 112	Potential environmental threat posed by petroleum and non-petroleum oils spills	If >1340 gallons above ground or 40,000 underground SPCC	SPCC dated 3/12/16
Storm Water- (Roof, Parking Lot)	(NPDES)– 40 CFR 122	To regulate discharges of pollutants into the waters of the United States	If certain materials stored exposed to rain water, requires SWPPP	SWPPP dated 10/21/17

6.1.3: Compliance obligations- “Other”

Aspect	Regulatory Source	Applicable Regulation	Requirement	Comments
Shipping product to Mexico on wooden pallets	International Standards For Phytosanitary Measures No. 15 (ISPM 15)	To prevent the international transport and spread of disease and insects that could negatively affect plants or ecosystems	Need to treat wood materials of a thickness greater than 6mm, used to ship products between countries.	Use Heat Treated Pallets
Exporting finished product to Europe	Restriction of Hazardous Substances Directive (RoHS)	To reduce the amounts of (6) toxic materials in electronic waste; Lead (Pb); Mercury (Hg); Cadmium (Cd) and others.	The maximum permitted concentrations in non- exempt products are 0.1%	Products certified by outside laboratory as RoHS compliant; 2/12/17

6.2 Environmental objectives and planning to achieve them

6.2.1 Environmental objectives

“The organization shall establish environmental objectives at relevant functions and levels, taking into account the organization's significant environmental aspects and associated compliance obligations, and considering its risks and opportunities.

The environmental objectives shall be: consistent with the environmental policy; measurable (if practicable); monitored; communicated; updated as appropriate.”

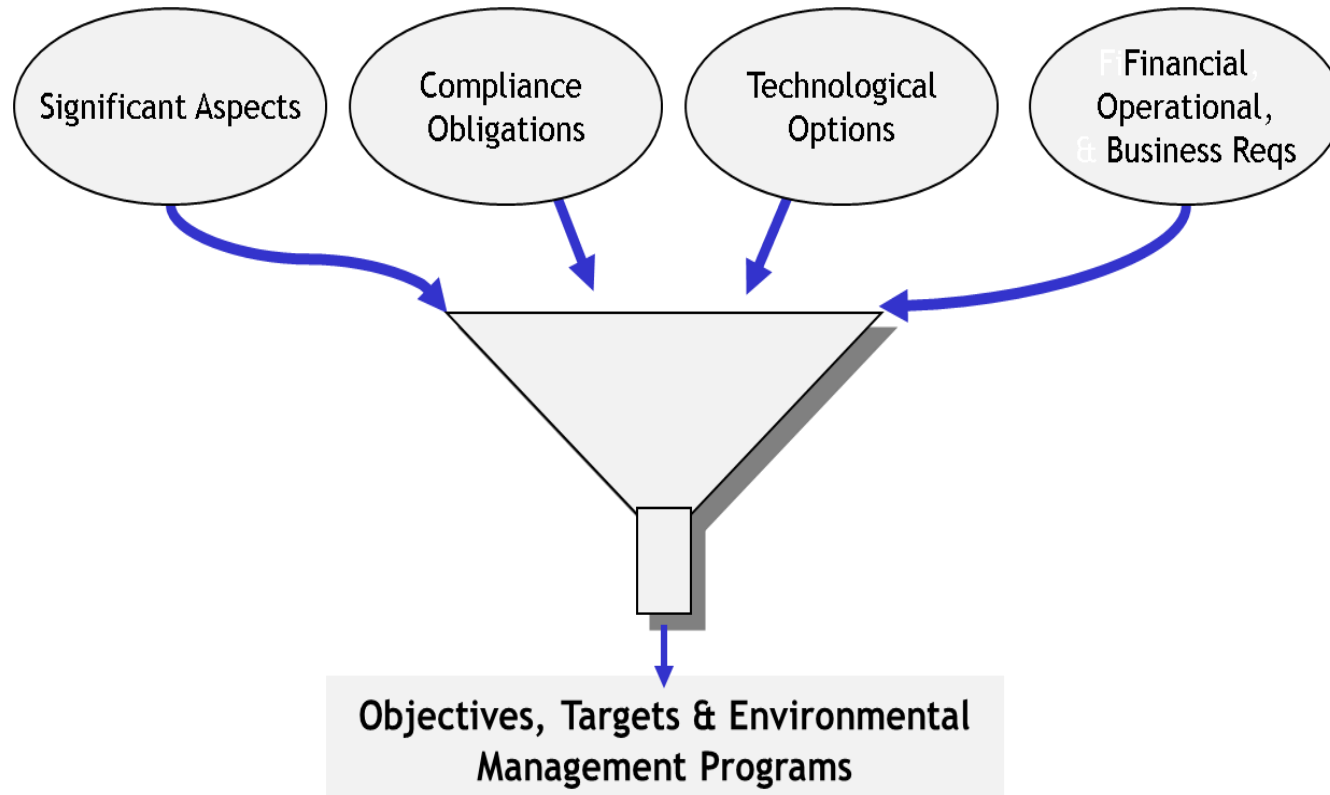
6.2 Environmental objectives and planning to achieve them

6.2.2 Planning actions to achieve environmental objectives

When planning how to achieve its environmental objectives, the organization shall determine: what will be done; what resources will be required; who will be responsible; when the project will be completed.

The organization shall consider how the results will be evaluated and how actions to achieve its environmental objectives can be integrated into the organization's business processes.

Selecting Environmental Objectives



Potential Objectives Analysis

Input	Information Sources	Possible Objectives
Significant environmental Aspects	Highest Rank, Risk Analysis, Cost, Interested Parties	Reduce Air discharge from Paint Booth - Reduce Paint waste
Compliance obligations	Risk Analysis, New regulations, Customer Perception	Replace toxic materials
Technological options	New developments	Add Solar cells to reduce electrical costs
Financial, operations and business requirements.	Utility costs, Operating costs	Reduce Plant wide use of electricity

Example: Environmental Objectives

*Factor	Category	Objective	Target	Program
SEA	Disposal of Waste Paint	Reduce hazardous waste generated in the paint department	Reduce by 5% compared to FY2017	PRG18-01
OP	Cost Reduction	Reduce plant wide electrical use	Reduce by 3% compared to FY2017; based on KWH per mm units produced.	PRG18-02
TECH	Reduction of fossil based fuel sources	Replace Parking lot lights with Solar Operated LEDs	100% conversion by 12/18	PRG18-03
*Significant Environmental Aspect= SEA; Compliance= COMP; Technology= TECH; Operational, Business= OP				

Example: Environmental Programs

Date: 02.16.17	Program: Install a 900+ kw solar Photo-voltaic generating system.	Program #: PRG18-03
Environmental Objective: Reduce electrical use at Plant and company's contribution to Greenhouse Gas (GHG) emissions		Project Leader: Bill Brown
Target: Reduce electrical use by 43% (compared to 2016) during 2018		Estimated Completion Date: Install solar cell and commission by 01.01.18

Example: Environmental Programs

#	Task	Responsibility	Schedule	Complete
1	Research options and make recommendation	B. Brown	08.01.17	
2	Obtain approve for recommendation	B. Brown	09.01.17	
3	Select supplier and place purchase order	R. Rounds	10.01.17	
4	Install a 900+ kw solar Photo-voltaic generating system	R. Rounds	11.15.17	
5	Commission generating system	R. Rounds	12.31.17	
6	Track electrical use	B. Brown	2017	
7	Develop estimate for GHG reductions	B. Brown	2018	

7: Support

7.1 Resources

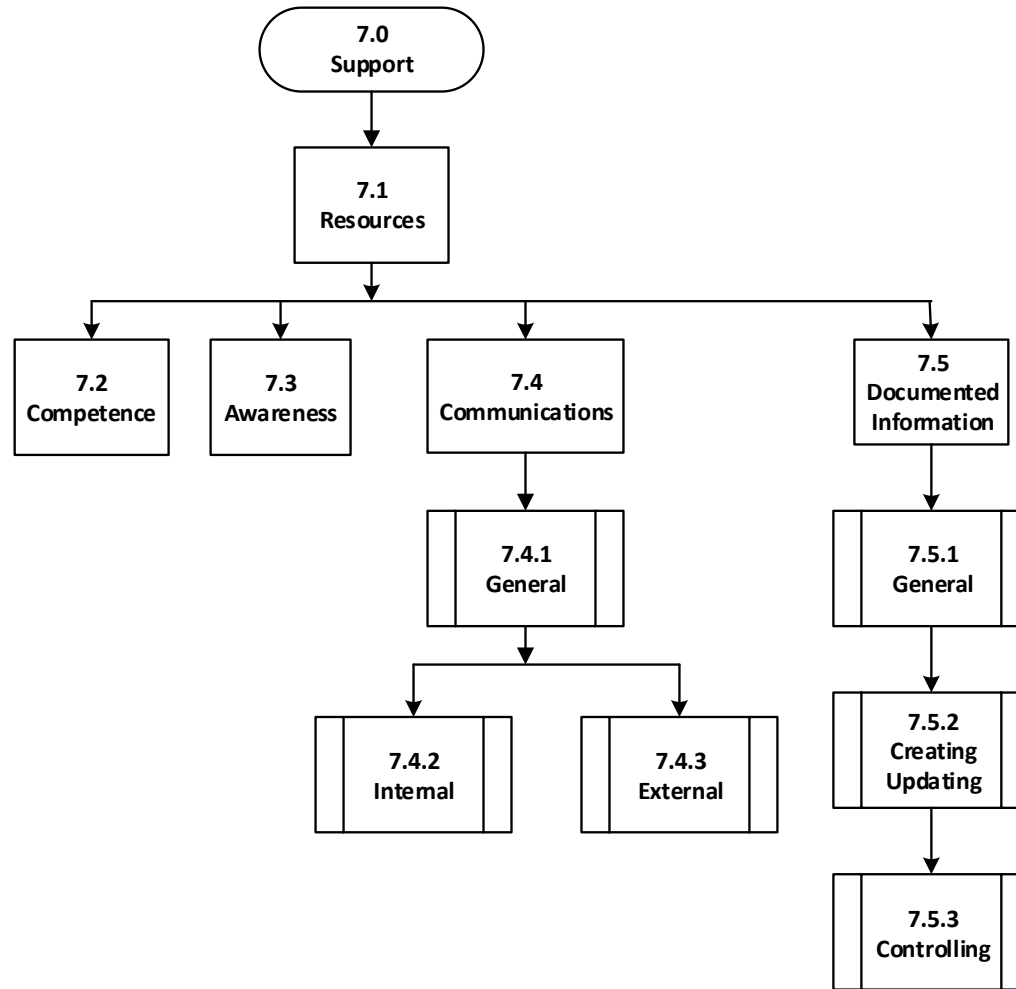
The organization shall determine and provide the resources needed for the establishment, implementation, maintenance and continual improvement of the environmental management system.

7: Support- Explained

The Support and Resource clauses of ISO14001:2015 covers requirements for how the organization will:

- Determine competence of persons doing work under its control;
- Make persons doing work under the organization's control aware of the requirements of the environmental management system and the potential impacts associated with their work;
- Plan and implement a process for internal and external communications relevant to the environmental management system;
- Create, update and control documented information required by the environmental management system and ISO14001:2015.

Clause 7 Sub-clauses



Clause 7 Sub-clause Focus

#	Clause	Focus	Objective Evidence
7.2	Competence	Employee/Contractor ability to perform tasks within the EMS	Job descriptions; Training Records and licenses; Compliance related competence reports
7.3	Awareness	Employee understanding of the intent of the EMS and the environmental objectives	Awareness meeting attendance; employee interviews
7.4.2	Internal Communications	Changes in the EMS; Employee contributions to improvement	Postings in the plant; employee interviews
7.4.3	External Communications	Ensure follow-up to external communications	Communication logs and compliance reports

Environmental Work Assignments with Competence and Training Requirements:

Task	Source of Training Requirements	Special Requirements
Waste water treatment	Operating Instructions	Local License
Handling Hazardous waste	Hazardous Waste Contingency Plan	HazMat/ HazWoper
Operation of air controls	Operating Instructions	EPA/ State
Storm Water Controls	SWPPP	Certification
Spill Plans	SPCC	EPA/ State
Emergency Team member	Emergency Plans	Fire Training

7.4 External Communications

The intent of External Communications is to ensure the organization follows up on communications from neighbors, regulatory agencies or other interested parties. An example would be a neighbor of the plant noticed debris from the organization's trash container was blowing off the organization's property.

The plant should respond to the complaint and establish corrections as appropriate. When a regulatory agency visits the site, likewise the event should be documented with follow-up actions defined and implemented. A useful tool to record the complaints and regulatory visits is a Communications Log, with personnel responsible for the responses properly trained

7.4 External Communications

The organization should record how it will respond to requests by the public (or customers) for information related to its environmental management system. How will the organization provide the public with a copy of the Environmental Policy? Is the policy on the organization's website or other communication links? Who in the organization has the authority to report to the news media relative to an environmental incident at the site?

Clause 7.5: Documentation

7.5.1 General

“The organization's environmental management system shall include documented information required by this International Standard and documented information determined by the organization as being necessary for the effectiveness of the environmental management system. The extent of documented information for an environmental management system shall be appropriate to the size and complexity of the organization.”

Documentation: ISO14001:2015 Annex A

“Documented information originally created for purposes other than the environmental management system, may be used. The documented information for the environmental management system may be integrated with other information management systems implemented by the organization.

The primary focus of organizations, however, should be on the effective implementation of the environmental management system and on environmental performance, not on a complex documented information control system”.

Documentation: Nomenclature

A nomenclature change with ISO 14001:2015 is designating *documented information* for documents and records.

Procedure: Specified way to carry out an activity or a process;

Record: Evidence of conformance to a requirement

*I suggest maintaining the current
“documents” and “records” terminology*



7.5: EMS Manual

ISO 14001:2015 does not require an Environmental Management System Manual

I suggest organizations continue to use an EMS manual as a high level consolidation of the key elements- or roadmap, of their EMS documentation- BUT streamlined to eliminate non-value verbiage and paraphrasing.

EMS Manual Contents

- A description of the organization's business model, including the context of the organization and expectations of interested parties.
- The scope (the activities, processes and buildings and locations) of the EMS.
- The documented procedures established for the EMS, or reference to them.
- The Environmental Policy
- Responsibility/ Authority Chart

EMS Manual Contents

- A description of the organization's business model, including the context of the organization and expectations of interested parties.
- The scope (the activities, processes and buildings and locations) of the EMS.
- The documented procedures established for the EMS, or reference to them.
- The Environmental Policy
- Responsibility/ Authority Chart

7.5: Documentation Explained

The overarching principle in documentation should be to formalize what is needed to ensure users of the documentation have a source for information and instructions that is accurate and timely, providing consistency in managing the business. Environmental records provide evidence of conformance to a specification or requirement. Records are the cornerstone to all management systems.



EMS Records

Record Title	Form #	Location	Type	Retention	Disposition
Hazardous Waste Weekly Inspection	F-101	EHS Office	Copy	5 years	Archive
EMS Training Records	F-102	H Drive	E-File	3 years	Archive

Environmental Records Review:	
Plant Inspections	Communications Log
Environmental Incident Report	EMS Training Records
Management Review Notes	Contractor Awareness
Compliance Audit Reports	Hazardous Waste Manifests
Corrective Actions	Maintenance Check Lists
Internal Audit Reports	Other (waste water, storm water, etc.)



Clause 8.1 Operational Planning and Controls

“The organization shall establish, implement, control and maintain the processes needed to meet environmental management system requirements and establish operating criteria for the processes.”

The organizations needs to control the impact on the EMS of:

- *Operations*
- *Planned changes*
- *Outsourced processes*
- *Procurement of products and services*
- *Design and development processes*
- *The delivery of the products*
- *End-of-life treatment of the product*

Operational planning and controls- Focus

ISO14001: 2015, Clause 8.1 Requirement	Area of Focus for Control
<p><i><u>Control and maintain the processes</u> needed to meet environmental management system requirements and establish operating criteria for the processes.</i></p>	<p>Controls need to be defined to support the organization's environmental aspects, compliance obligations and objectives to reduce risks and support improvements.</p>
<p><i><u>Control planned changes</u> and review the consequences of unintended changes, taking action to mitigate any adverse effects, as necessary.</i></p>	<p>The organization needs to ensure controls are in place when changes occur in processes, resources and equipment.</p>
<p><i><u>Controls for outsourced processes</u> are defined and implemented.</i></p>	<p>When processes are provided by contractors and/ or suppliers, the environmental impacts need to be defined with appropriate controls established and implemented.</p>

Operational planning and controls- Focus

ISO14001: 2015, Clause 8.1 Requirement	Area of Focus for Control
<i>Controls, as appropriate, to ensure that its environmental requirements are addressed in the <u>design and development process for the product or service, considering each life cycle stage</u></i>	The Product design process should consider the impact of materials used to avoid environmentally challenged materials during use, delivery and disposal at end of life.
<i>Communicate relevant environmental requirements to <u>external providers, including contractors</u></i>	Contractors employed by the organization should be indoctrinated/ trained as to how their activities may have impact on the organization's environmental management system.
<i>Provide information about potential significant environmental impacts during the <u>delivery of the products or services and during use and end-of-life treatment of the product.</u></i>	The organization needs to provide users of their products with information related to environmental impact during use and disposal of the organization's products, as appropriate.

Outsourced Processes- Controls

When the organization hires a contractor (persons working under its control) to provide services such as maintenance, cleaning, painting or construction activities, then Clause 8.1 should be followed. Contracted activities are considered “outsourced processes”.

ISO14001: 2015 Annex A8.1 defines outsourced processes as follows:

An outsourced process is one which:

- The function or process is integral to the organization's functioning;
- The function or process is needed for the management system to achieve its intended outcome;
- Liability for the function or process conforming to requirements is retained by the organization ;and
- The organization and the external provider have an integral relationship e.g. one where the process is perceived by interested parties as being carried out by the organization.

Outsourced Processes- Workers

Category	Type of Work
Suppliers or Vendors	Produce and deliver materials or services to the organization. Remove waste from the organization's site.
Temporary workers	Perform tasks to replace organization's employees
Contractors on site	Perform maintenance or construction or other services at organization's site

Control of Contractors

A Contractor pamphlet (or similar document) can be employed by the organization to inform contractors of restrictions on bringing chemicals on site (MSDS/SDS required); disposal regulations for chemicals/ materials; access to piping and tanks and any other tasks affecting the organization's environmental performance. The organization's Environmental Policy can be helpful as an attachment. Additionally, the organization's Significant Environmental Aspects can be listed, asking the Contractor to sign-off on how their work might impact the organization's environmental performance.

It is strongly recommended that attention to Contractor controls be considered a high risk position in all organization's environmental management systems. Many unintended environmental releases or accidents have occurred throughout the US as a result of the lack of contractor training or inadequate communication to the contractor by the hiring organization.



8.2 Emergency preparedness and response

“The organization shall establish, implement and maintain the processes needed to prepare for and respond to potential emergency situations.”

- Emergency Plans
- Identify potential situations
- Prevent & mitigate environmental impacts
- Review & revision process
- Periodic drills
- Contingency plans for hazardous waste management, if applicable

Integrated Emergency Plans

The environmental emergency planning procedures can be consolidated with other safety/ emergency planning procedures. If the organization has requirements for emergency planning for:

- Hazardous Waste Management Contingency planning
- Spill Prevention, Control and Countermeasure plan (SPCC)
- Storm Water Pollution Prevention Plan (SWPPP)
- Emergency Planning & Community Right-To-Know Act (EPCRA)

Clause 9: Performance Evaluation

9.1.1 General: “The organization shall monitor, measure, analyze and evaluate its environmental performance to determine what needs to be monitored and measured and the methods for monitoring, measurement, analysis and evaluation, as applicable.

9.1: Monitoring, measurement, analysis and evaluation

9.1.1: General.

9.1.2: Evaluation of compliance

9.2: Internal audit.

9.2.1: General.

9.2.2: Internal audit programme

9.3: Management review

Monitoring & Measuring Examples

Category	Example	Monitoring Evidence
Operating Controls	Hazardous Waste Management Waste Water Treatment	Hazardous Waste Logs, Reports to Agency
Objectives	- Reduce Hazardous Waste - Reduce Electrical Use	Charts at Management Review
Environmental Performance	Use of electricity, gas, water, waste	Charts at Management Review
Calibration of Instruments	pH meters, flow meters	Calibration records

Calibration of Environmental Monitoring Devices:

9.1.1: “The organization shall ensure that calibrated or verified monitoring and measurement equipment is used and maintained, as appropriate.”

The rule of thumb for determining what devices require calibration in the environmental management system is to start with the logic: What devices support evidence the organization is meeting its compliance obligations?

An organization with waste water treatment obligation (and permit) to control the pH of effluent discharge to a local POTW (publicly owned treatment works) would need to ensure the pH meter is calibrated at reasonable intervals.

9.1.2: Evaluation of compliance

“The organization shall establish, implement and maintain the processes needed to evaluate its compliance obligations by determining the frequency that compliance will be evaluated, evaluating the organization’s compliance and taking actions as needed.”

- Is there a plan to define compliance audit?
 - Frequency
 - Responsibilities
- Is there a record of environmental compliance audits?
- Have customer, industry or corporate requirements (other) been audited?
- Have corrective actions been initiated and addressed related to compliance audit findings?

9.1.2: Evaluation of compliance- Desk Top Audit

Desk Top audit: The base-line for the compliance audit should be the Compliance Obligations List from Section 6.1.3. First step would be a “desk top” audit of each applicable environmental aspect to verify the organization has the most current Regulation in the system.

Next, the related permits should be reviewed with respect to changes and need for resubmittal to an agency. A regulation with annual or periodic reporting should be assessed. If the organization is regulated under chemical use regulations (EPCRA, TSCA); the records of annual reporting should be verified. Certain waste water permits require quarterly reports to the local treatment plant: are they current?

9.1.2: Evaluation of compliance- Plant Tour

Plant Tour: A plant audit (tour) should be conducted, starting with a review of the Operational Controls defined in Chapter 8. The SOP's or similar documents will indicate where inspections or other records are required and can be verified during the plant audit. An experienced compliance auditor can easily point out discrepancies during a walk-through of the plant- inside and out.

During the plant tour, discrepancies should be noted and recorded in the organization's corrective action process (chapter 10). Agreement should be established between the client and the organization as how the compliance auditor will report issues that could result in nonconformity with its compliance obligation

Client Attorney Privileges and N.O.V.s

In the United States, compliance monitoring is one of the key components the Environmental Protection Agency (EPA) uses to ensure that the regulated community obeys environmental laws and regulations. It encompasses all regulatory agency activities performed to determine whether a facility is in compliance with applicable law.

When environmental violations occur in the US, regardless of who observed the incident, a chain of events ensue- sometimes quite contentious. A Notification of Violation (N.O.V.) describing the incident can result in very expensive corrections, hefty fines- and even imprisonment for the offending managers or company executives.



Client Attorney Privileges -ANAB

A common issue involved with reviewing compliance auditing by ISO14001 auditors is the concept of *Client Attorney Privileges*. This is legal concept in the US that protects certain communications between a client and their attorney and keeps those communications confidential. So, organizations being audited often cite *Client Attorney Privilege* when the auditor requests to review the organization's Compliance Audit report. The concern from the organization is there may be an N.O.V. exposed by the Compliance auditor, but not yet public knowledge or on the EPA's radar. ANAB (ANSI-ASQ National Accreditation Board), the organization that authorizes the Registrars in the US to issues certificates to ISO14001 has published advisories to assist auditors and

Registrars when faced with the Client Attorney Privilege challenge. Essentially, ANAB has instructed the Registrars to not accept an affirmative statement in lieu of obtaining audit evidence that an organization has a satisfactory system for ensuring compliance.



Clause 9.2 Internal Audit

“The organization shall conduct internal audits at planned intervals to provide information on whether the environmental management system conforms to the organization's own requirements for its environmental management system and the requirements of this International Standard, is effectively implemented and maintained.”

Audit schedule/ audit plan?	How formulated?
Have all EMS processes/ clauses been audited?	How is audit evidence obtained and recorded?
Has an internal EMS audit team been established?	Have the auditors been trained/ qualified?
Are audits occurring according to schedule?	Are the follow-up actions and reporting to management timely?

Sample Check sheets for Clause 8.1

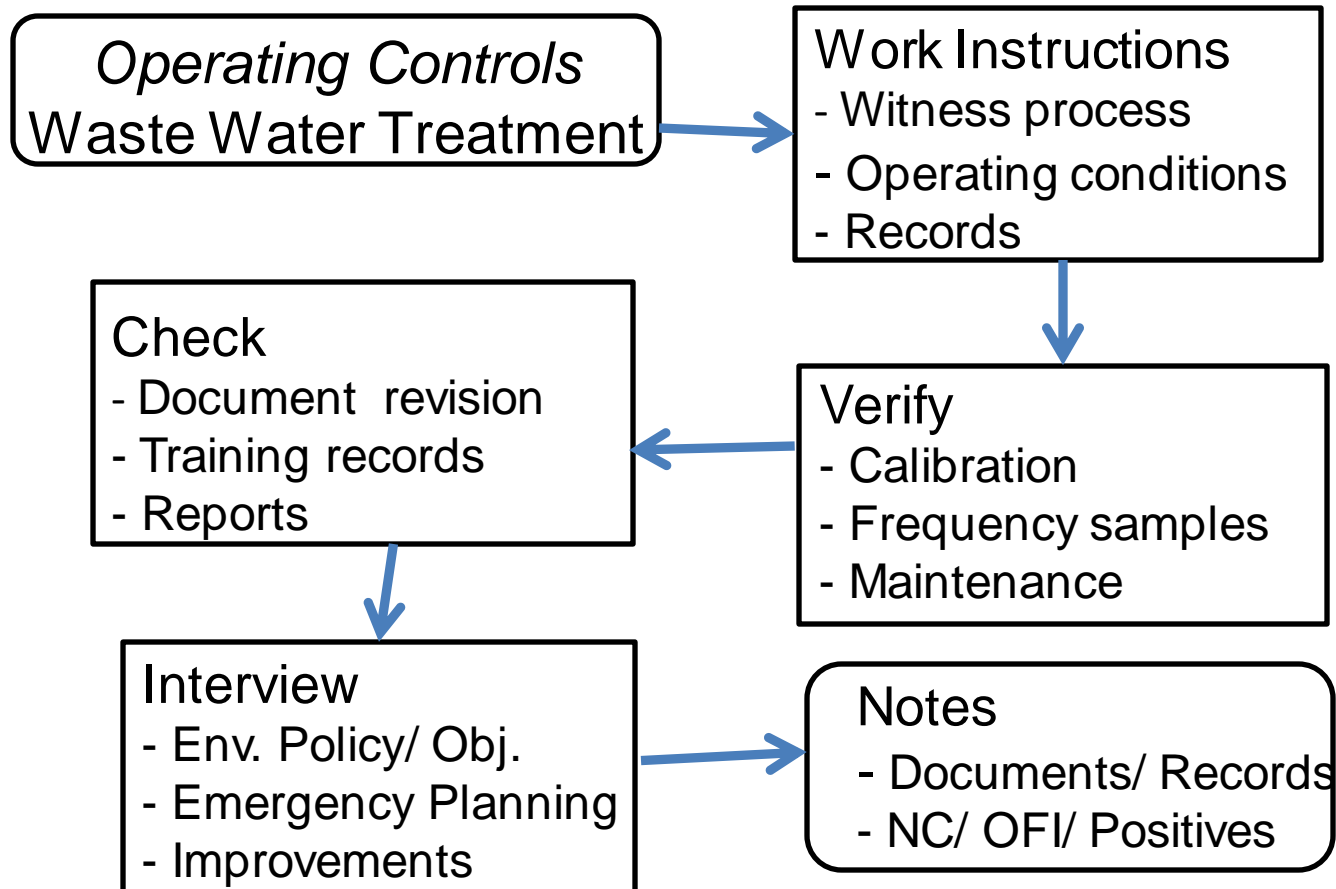
Process: Operational planning and control	Clause: 8.1
Date:	
Auditor:	Auditees:
	C = conforming; NC= nonconforming; O= Opportunity

Sample Check sheets for Clause 8.1

The organization shall establish, implement, control and maintain the processes needed to meet environmental management system requirements, and to implement the actions identified in 6.1 (Environmental aspects) and 6.2 (Environmental objectives and planning to achieve them) by:- establishing operating criteria for the processes; -implementing control of the processes, in accordance with the operating criteria.

What are the environmental aspects or activities that require operational controls?	Define operating controls as applicable for each aspect	
- Handling hazardous waste		
- Control of air emissions		
Comments/ NCs/ Opportunities:		

Process Based Internal Audit



Internal Auditors and “Gaps” during Plant Tour

- Improper storage of hazardous waste/ universal waste
- Unlabeled containers/ incorrect storage
- Missing SDS for chemicals
- Outdated calibration stickers/ pH buffer solution
- Obsolete instructions
- Discrepancies with emergency response equipment
- Water leaks/ oil on floor
- Recycle material mixed
- Improper storage outside plant
- Poor housekeeping plant exterior

9.3 Management Review

“Top management shall review the organization’s environmental management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. The management review shall include the status of actions from previous management reviews.”

- *Is the Agenda/schedule consistent with requirements and procedure?*
- *Were recommendations for improvement made?*
- *Is there evidence that management has reviewed and revised the EMS?*
- *Is the review documented?*
- *Were the follow-up actions addressed and closed?*

9.3 Management Review

The organization has several options related to reporting the status of the environmental management system. The Environmental Management Review meeting can be incorporated into the organization's Quality Management Review or other business management meetings.

Whatever the format, the agenda of the EMS is fairly straightforward and prescriptive- each agenda topic needs to be addressed during the frequency cycle established in the organization's planning. At a minimum, the EMS should be reviewed annually by the organization's senior staff.

Clause 10: Improvement

“The organization shall determine opportunities for improvement and implement necessary actions to achieve the intended outcomes of its environmental management system.”

10.2 Nonconformity and corrective action: “When nonconformity occurs, the organization shall react to the nonconformity and, as applicable take action to control and correct it and deal with the consequences, including mitigating adverse environmental impacts.

10.3 Continual improvement: “The organization shall continually improve the suitability, adequacy and effectiveness of the environmental management system to enhance environmental performance.”

10.2: Nonconformities & Corrective Actions

- Have corrective actions been completed and were they effective?
- Have EMS audit nonconformities been tracked in the system?
- Is follow-up action being taken?
- How does organization identify nonconformities (tours/ inspections?)

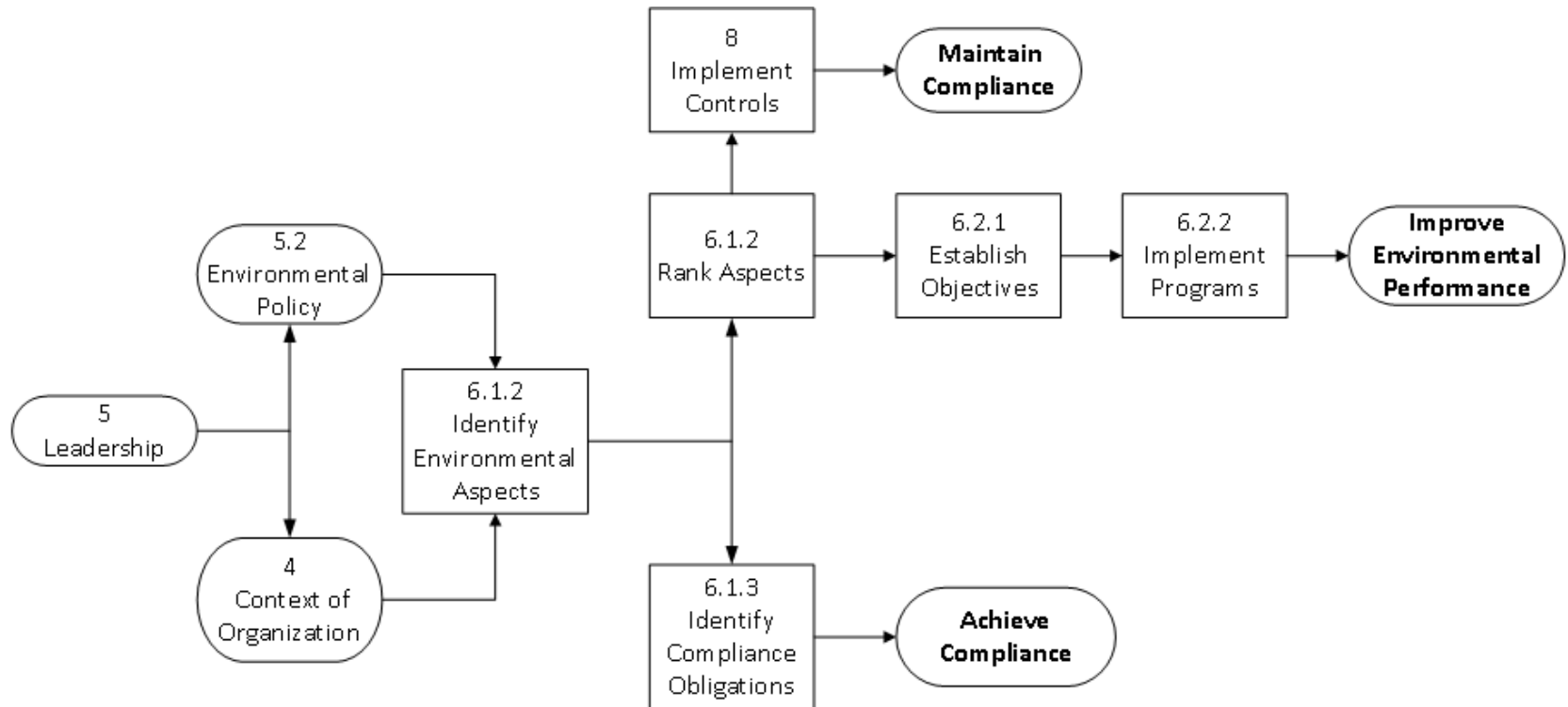
Sub-clause	Source	Evidence
Nonconformity & Corrective Actions	<ul style="list-style-type: none">- Environmental incidents.- Emergency Drills.- Compliance Audits- Regulatory Inspections- Neighbor complaints- Plant Tours- Internal Audits, - 3rd Party Audits.- Environmental Performance	<ul style="list-style-type: none">- Audit notes, findings- Tour notes- Employee suggestions- Regulator citations- Communication Log

10.3 Continual Improvement

- Is the organization meeting its environmental objectives?
- Has the organization reduced its waste?
- Has the organization reduced use of utilities?

Sub-clause	Source	Evidence
Environmental Improvement Programs	<ul style="list-style-type: none">- Performance against environmental objectives.- Trend charts related to use of resources.- Reduction of waste.- Reduction of material sent to Landfill.- Replacement of toxic chemicals.- Increased recycle	<ul style="list-style-type: none">- Management Review notes- Improvement Team meeting notes.- Staff business meeting notes- Employee interviews

Linking the EMS to ISO 14001:2015



Thank You!



Energy and Environmental
DIVISION



Questions?



To learn more...

About Milt Dentch:

Email: miltdentch@gmail.com

www.mpd-qe-consulting.com

Look out for his books,

"The ISO 9001:2015 Implementation Handbook";

"The ISO 14001:2015 Implementation Handbook";

"The ISO 45001:2018 Implementation Handbook.

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