

OVERVIEW OF ISO 14001:2015

Day 3 – Support & Operation





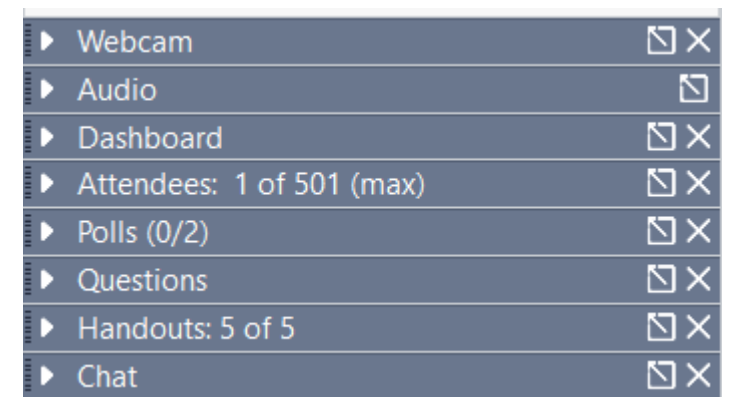
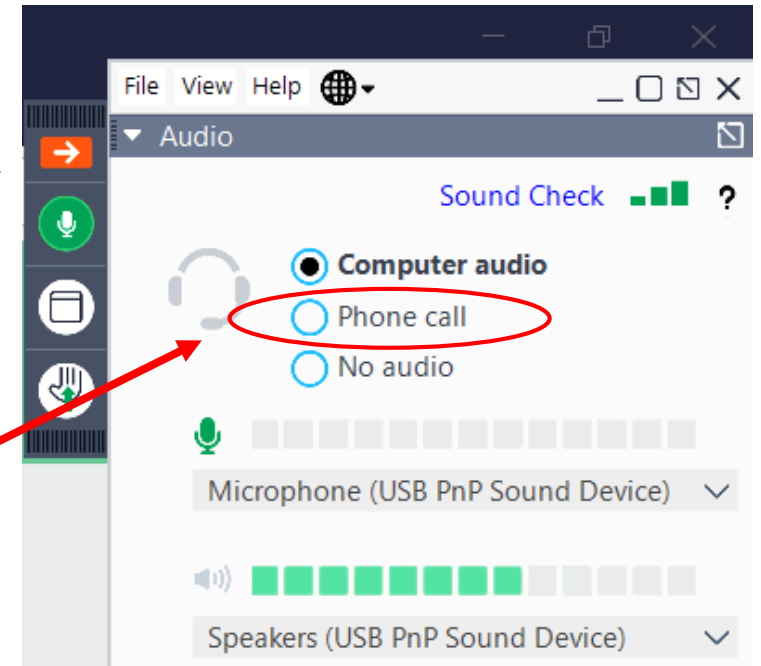
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 - Design Guidance Workbook – EMS development
 - ISO 14001 – Shall Statements/Documentation Req.
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Agenda



- Welcome
- Resources, Competence, and Awareness (7.1, 7.2 & 7.3)
- Communication (Clause: 7.4.1, 7.4.2 & 7.4.3)
- Documentation and Document Control (Clause: 7.5.1, 7.5.2 & 7.5.3)
- Operational Control, Environmental Requirements & Outsourced Processes (Clause: 8.1)
- Q&A



Questions



- Last week's material:
 - Risks and Opportunities (Clause: 6.1.1)
 - Aspects & Life Cycle Perspective (Clause: 6.1.2)
 - Compliance Obligations & Planning Actions (Clause: 6.1.3 & 6.1.4)
 - Objectives & SMART Goals & Planning to Achieve Goals (Clause: 6.2.1 & 6.2.2)



SUPPORT & OPERATION

Section 7 Support

7.1, 7.2, 7.3, 7.4.1, 7.4.2, 7.4.3, 7.5.1, 7.5.2, 7.5.3

Section 8 Operation

8.1, 8.2

7.1 Resources



- Organization *shall* determine and provide the resources needed for establishment, implementation, maintenance, and continual improvement of the EMS





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7.2 Competence

- Organization **shall**
 - Determine the necessary competence of person(s) doing work under its control that affects its environmental performance and its ability to fulfil its compliance obligations
 - Ensure that these persons are competent based on appropriate education, training, or experience
 - Determine training needs associated with its environmental aspects and EMS
 - Where applicable, take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken
- Organization **shall** retain appropriate **documented information** as evidence of competence



Determine the necessary competence of **person(s) doing work under its control** that affects its environmental performance and compliance obligations

“Persons doing work” includes:

- Employees
- Pest control
- Landscapers
- Garbage haulers with hydraulic systems
- Large volume oil or fuel off-loading
- Waste haulers
- Pump trucks
- HVAC contractors
- Any Contractor!



Determine who needs to be competent:

- Persons working under the organization's control who affect its environmental performance including:
 - ✓ Persons whose work could affect a significant environmental aspect, compliance obligation or objective.
 - ✓ Persons who are responsible for the environmental management system, including those who:
 - ❑ Determine and evaluate environmental impacts or compliance obligations
 - ❑ Contribute to the achievement of an environmental objective
 - ❑ Respond to emergency situations
 - ❑ Perform internal audits
 - ❑ Perform evaluations of compliance
- Best to define by position instead of employee name



How do you determine “necessary competence”

- Education
- Certification
- Experience
- Training
- EX: In the job description of the EMR for your organization it states the EMR must have at least one year of experience working with an EMS and a four-year college degree. This is what has been deemed “necessary competence” to do the job and should be included in the EMS.
- Also referred to as “competency indicator”



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Other Competency Indicators:

- Attendance at workshops/sessions
- Attendance of training
- On the job training
- Direct supervisor approval of employee's competency
- Quiz, written/oral
- Observation of related work & performance



Determine training needs associated with aspects and EMS?

- Environmental Aspects:
 - Spill prevention and response
 - Hazardous waste management
 - Painting operations
 - Air permit requirements
 - SOP
- Environmental Management System:
 - Internal auditor
 - EMS (ESI module training) / ISO 14001
 - Leadership



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Documentation

- The organization shall retain appropriate documented information as evidence of competence.
 - Document:
 - ✓ Who needs to be competent (job titles, include contractors)
 - ✓ What is the necessary competence of that job
 - ✓ Evidence that the person doing that job is competent
 - ✓ What are the training needs for jobs associated with significant aspects and EMS
 - ✓ Evidence of actions taken to acquire the necessary competence and evaluate the effectiveness of the actions taken



Example Training Needed Matrix

In order for employees to be deemed competent, they must have undergone the following training and meet additional competency requirements.

Department / Job Position's OR Employee	Training Requirement											Additional Competency Requirement
	ISO 14001 Awareness	Evacuation plan	Spill Prevention & Response (EP-16)	SPPC Required Training	Hazardous Waste Management	Hazardous Materials Shipping (DOT)	Glueing Operatinos	Painting Operations	Waste Water Discharges	Air Permit Requirements	Internal Auditing	
Top Management	x	x										
Clerical/Admin	x	x										
Production Supervisors	x	x	x	x			x	x	x	x		
Maintenance Supervisor	x	x	x	x	x				x	x		2yrs experience
Quality Management	x	x										
Machining Operators	x	x	x									
Assembly	x	x	x				x	x				
Laboratory	x	x	x				x	x				4-year degree
Testing	x	x	x				x	x				
Maintenance / Facility	x	x	x	x			x	x	x			
Shipping and Receiving	x	x	x	x	x	x						
EMS Internal Auditors	x	x	x								x	
FREQUENCY OF TRAINING	Once	1 / yr	1 / yr	1/3 yr	1 / yr	1 / yr	Once		Once	Once	Once	



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Training Record / Competence Sign-Off Sheet

Example Training Form

Employee Name:		Job Position:	
Department:		Date Hired:	

Skills, Equipment or Awareness Areas	Related to Significant Aspect ? (Y or N)	Check Off Applicable Boxes or Provide Dates if requested									
		Level of Competency (1)				Training Needed ?	Training Records			Training Records	
		Awareness Level	Competent	Assessment Date	Initials of Assessor		Training Date	Instructors initials	Training Date	Instructors initials	

(1) Competency should be assessed by observation, test results, interview, or other means



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7.3 Awareness

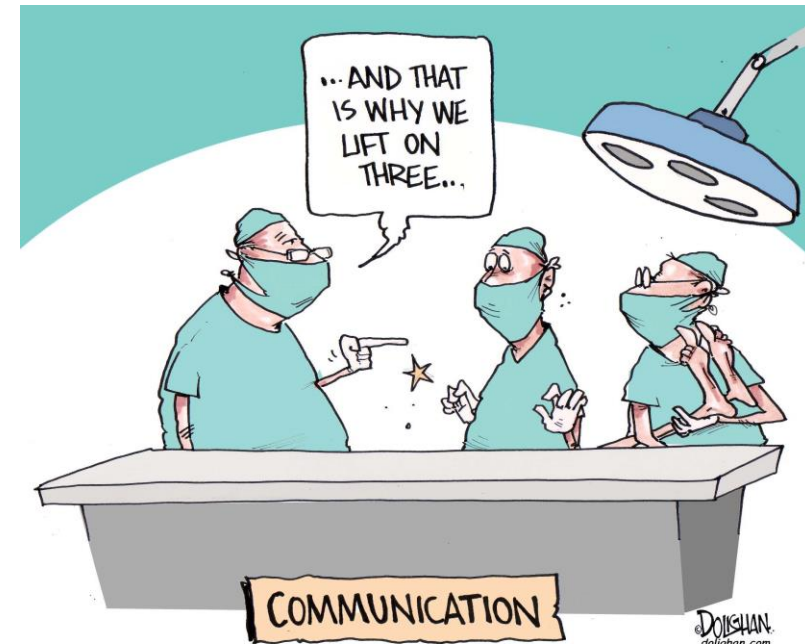
- Organization *shall* ensure persons doing work under the organization's control are aware of:
 - The environmental policy
 - The significant aspects and their related impacts associated with their work
 - Their contribution to the effectiveness of the EMS including benefits of enhanced environmental performance
 - Implications of not conforming with the EMS including not fulfilling compliance obligations



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7.4.1 Communication - General

- Organization *shall* establish, implement, and maintain the process(es) needed for internal and external communications relevant to the EMS including:
 - On what it will communicate
 - When to communicate
 - With whom to communicate
 - How to communicate



7.4.1 Communication - General



- When establishing its communication process(es) the organization **shall** :
 - ✓ Take into account compliance obligations
 - ✓ Ensure communicated environmental information is consistent with information generated in the EMS and is reliable
 - ✓ Organization **shall** respond to relevant communications on its EMS



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7.4.1 Communication - General

- Organization *shall* retain documented information as evidence of its communications, as appropriate (record)

EF-06A EMS Communication Log							
Date	Initial Communication				Response		
	Name	Company	Phone # or email address.	Subject of Communication	Date	Action Taken	Employee Initials

7.4.2 Internal Communication

- Organization *shall*:
 - Internally communicate information relevant to the EMS among the various levels and functions of the organization including changes to the EMS, as appropriate
 - Ensure its communication process(es) enable(s) persons doing work under the organization's control to contribute to continual improvement



Do you have contractors performing activities after hours?



7.4.3 External Communication

- Organization *shall* externally communicate information relevant to the EMS as established by the organization's communication process(es) and as required by its compliance obligations

Similar to 2004 standard that required you to establish, implement, and maintain a procedure for receiving, documenting and responding to relevant communications from external interested parties

Differs in that the 2004 standard stated that the organization shall decide whether to communicate externally about its significant environmental aspects and shall document its decision.



External Communication



A screenshot of the Novozymes website. The top left features the Novozymes logo and the tagline "Rethink Tomorrow". Below this is a navigation menu with "ABOUT US" selected. The main content area shows a photograph of a person in a white lab coat working in a laboratory setting. To the right of the photo is a "CONTACT US" section with a search bar and a "GO" button. The bottom left of the screenshot shows a "CLIMATE IN FOCUS" and "INDUSTRY IN FOCUS: BIOFUELS" section.

SEARCH

CONTACT US

Novozymes' Sustainability Development department further info

Write an email to: [sustainability@novozymes.com](#)



Our approach



Do you have a policy on what company information may be shared on employee social media accounts?



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7.4 Your Communication should...

- Be transparent – organization is open in the way it derives what it has reported on
- Be appropriate – information meets the needs of relevant interested parties enabling them to participate
- Be truthful and not misleading to those who rely on the information reported
- Be factual, accurate and able to be trusted
- Not exclude relevant information
- Be understandable to interested parties



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Clause 7.5 – Documented information

7.5.1 - General

7.5.2 - Creating and updating

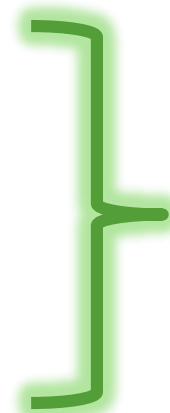
7.5.3 - Control of documented information

Different organizational structure than what was in 2004 version

4.4.4 - Documentation

4.4.5 – Control of documents

4.5.4 – Control of records



Section 4.4 – Implementation & Operation

Section 4.5 - Checking



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7.5 Terminology in ISO 14001:2015

- “Documented information” replaces the nouns “documentation”, “documents”, and “records” used in previous versions of the standard
- Uses phrase “retain documented information **as evidence of...**” to mean records
- Uses phrase “maintain documented information” to mean documentation other than records
- Phrase “as evidence of...” as noted in the Annex is not a requirement to meet legal evidentiary requirements; intent is only to indicate objective evidence needs to be retained



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7.5 Terminology – already have an EMS?

- Do you have to change your definitions/terminology in your EMS to match the new standard?

NO – you can continue to use the terms procedure, documentation, and record because this is what the people in your organization understand

- May see a benefit in replacing some of your current procedures or merging them (if you have separate document and record procedures)

7.5.1 General

Organization's EMS *shall* include:

- Documented information required by ISO 14001
- Documented information determined as necessary for the effectiveness of the EMS





7.5.2 Creating and updating

When creating and updating documented information, organization ***shall*** ensure appropriate:

- Identification and description (title, date, author, reference number)
- Format (language, software version) and media (paper, electronic)
- Review and approval for suitability & adequacy



7.5.3 Control of Documented Information

Documented information required by EMS & ISO 14001 *shall* be controlled to ensure:

- It is available and suitable for use, where and when it is needed (SOPs, job aids, policy)
- It is adequately protected (improper use, loss of integrity – exposed to weather?)



7.5.3 Control of Documented Information (cont'd.)

For control of documented information the organization *shall* address the following activities as applicable:

- Distribution, access, retrieval, and use
- Storage and preservation, including preservation of legibility
- Control of change (e.g. version control – changes to records?)
- Retention and disposition

Documented information of external origin determined by the organization to be necessary for the planning and operation of the EMS *shall* be identified (as appropriate) and controlled



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7.5 Standard Requirements

Mandatory documents:

- EMS Scope – 4.3
- Environmental Policy – 5.2
- Risks and opportunities that need to be addressed – 6.1.1
- Identification and evaluation of environmental aspects – 6.1.2
- Compliance obligations – 6.1.3
- Environmental objectives and plans for achieving them – 6.2.1
- Operational Control procedures – 8.1
- Emergency Preparedness and Response procedure – 8.2



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7.5 Standard Requirements

Mandatory records (as evidence of...):

- Competence of personnel (training records) – 7.2
- Evidence of communication – 7.4
- Monitoring performance – 9.1.1
- Calibration and other records from monitoring and measurement – 9.1.1
- Evaluation of compliance – 9.1.2
- Internal audit program implementation and its results – 9.2.2
- Management review results – 9.3
- Nonconformities and corrective action – 10.2



8.1 Operational Planning and Control

- Organization ***shall*** establish, implement, control and maintain processes needed to meet EMS requirements and implement actions identified in 6.1 & 6.2 (risks and opportunities, aspects, compliance obligations and objectives) by:
 - Establishing operating criteria for the processes
 - Implementing control of the processes



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Let's break this down!

- “The organization shall establish, implement, control and maintain the processes needed to meet environmental management requirements and to implement the actions identified in 6.1 and 6.2 (risk and opportunities, environmental aspects, compliance obligations and environmental objectives) by:
 - Establishing operating criteria for the process(es)
 - Implementing control of the process(es), in accordance with the operating criteria”
- “The organization shall maintain documented information to the extent necessary to have confidence that the processes have been carried out as planned.”
- It is not enough to *establish* controls, you have to make sure those controls are being carried out as planned (implementation) *and* you have to maintain evidence that it is being carried out as planned (documentation).



Example: Airplane Lavatory Waste Disposal







Example: Airplane Lavatory Waste Disposal





Example: Airplane Lavatory Waste Disposal

What kind of controls might be needed?

What documentation might be necessary to show the process is being carried out as planned?



Example: Airplane Lavatory Waste Disposal









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Example: Airplane Lavatory Waste Disposal

- Is the process being carried out as planned?
 - No!
 - An SOP is not enough. You must ensure the controls in place are being carried out as planned.
- What kind of checks might have prevented this (before an audit)?



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“Indicator for implementation”

- Indicator for implementation of controls are the “checks” to ensure your process is being followed as planned.
- What are some examples of “indicators for implementation”
 - Supervisor check logs
 - Computer system/engineering/software validation
 - Calibration
 - Monitoring, Measurement, Analysis and Evaluation
 - Competency check/test of employees
 - ???

Example: Airplane Lavatory Waste Disposal (aftermath)





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8.1 Operational Planning and Control

- Organization *shall* control planned changes and review consequences of unintended changes, taking action to mitigate any adverse effects



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Planned Changes

- Must be controlled
- Action must be taken to mitigate adverse environmental effects, "as necessary"
- Create a procedure for dealing with changes (planned and unplanned)
- New project checklist



New Project Checklist

INITIATING ACTIVITY MANAGER REVIEW

Project description including planned date of installation:

EMPLOYEE EXPOSURE POTENTIAL - Will this new project	YES	NO
---	------------	-----------

bring in material that is - considered toxic, hazardous or carcinogenic ?		
bring in material that is - odorous ?		
bring in material that requires - an MSDS to be present for employees?		
bring in material that requires - special handling or storage?		
bring in material that requires - a change to Emergency Response methods?		

AIR EMISSIONS - Will this new project	YES	NO
---	------------	-----------

produce or change existing - air emissions?		
require - an air permit or permit modification?		
require - air pollution controls?		
require - the use or purchase of ozone depleting substances?		

WATER DISCHARGES - Will this new project	YES	NO
--	------------	-----------

produce or change existing - wastewater, sanitary or storm water discharges?		
produce or change existing - water discharge flow rates?		
require - a permit modification?		
require - new or additional pretreatment be required?		

STORAGE TANKS - Will this new project	YES	NO
---	------------	-----------

require - underground storage tanks be installed?		
require - tanks be installed to store hazardous waste or materials or petroleum products?		

WASTE GENERATION - Will this new project	YES	NO
--	------------	-----------

produce or change existing - solid waste or recyclable material?		
produce - hazardous waste?		
require - off-site disposal?		
require - special handling, abatement or disposal measures?		

ENERGY USAGE - Will this new project	YES	NO
--	------------	-----------

effect - facility energy usage?		
---------------------------------	--	--

OTHER CONSIDERATIONS - Will this new project	YES	NO
--	------------	-----------

require - consideration of recycling options and costs?		
require - use of toxic, hazardous or carcinogenic materials?		
require - special handling or storage of materials?		
cause - land disturbances?		

call for - pollution prevention issues to be addressed?		
impact - the surrounding community (i.e., odor, noise etc.)?		
impact - any wildlife or land use issues?		
add any environmental aspects to the EMS?		
require - a change to Emergency Response methods?		

ATTACHMENTS:

Attach further information if any questions above are answered yes. This may include:

- descriptions of potential environmental impacts,
- plans to prevent pollution, maintain compliance, conserve resources, etc
- new controls, procedures, equipment, etc
- reviewed/revised environmental considerations in "organizational context" document

Initiating Activity Manager Signature	Date
---------------------------------------	------

EMR REVIEW

Project is acceptable - no new environmental areas are affected, requiring no changes to the EMS.	
Project is not acceptable based on the information provided (provide reasons below)	
Project is acceptable - the following changes to the EMS are required	

NEW or AFFECTED EMS ELEMENTS:

Aspects	Impacts	Compliance Obligations	Environmental Objectives	Operational Controls & Monitoring Parameters	Trainings

Additional Description of EMS changes needed - OR - Reasons for project rejection:

EMS CHANGE VERIFICATION

Revised Document Title	Date Revised	Date Implemented	Comments

NEW PRODUCT & SERVICE CHANGE - CONFIRMATION & DATE

Enter date new product and service was installed, and description of deviation (if any) from original plan:

Environmental Management Representative Signature	Date
---	------



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8.1 Operational Planning and Control

- Organization *shall* ensure that outsourced processes are controlled or influenced. The type and extent of control or influence to be applied to the processes *shall* be defined within the EMS.



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Outsourced Processes

- An outsourced process is one that fulfills all of the following:
 - It is within the scope of the environmental management system
 - It is integral to the organization's functioning
 - It is needed for the environmental management system to achieve its intended outcome
 - Liability for conforming to requirements is retained by the organization
 - The organization and the external provider have a relationship where the process is perceived by interested parties as being carried out by the organization



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Outsourced Processes

- Identify processes that are outsourced, be sure to look at providers of products and services.
- Define the “type and extent” of control or influence over these processes, products and services.
- What are some example of control over outsourced processes?
 - Contract agreements
 - Procurement process
 - Working relationship
 - Auditing contractors, etc.
 - Providing control equipment
 - Regular meeting with contractors or training provided



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Outsourced Processes

- When defining the type and extent of control consider the organization's:
 - Environmental aspects and impacts
 - Risks and opportunities
 - Objectives
 - Compliance obligations



Control of Outsourced Processes

	Outsourced Process, Product or Service	Define the Type/Extent of Control
Ex:	Janitorial Services	Contract with janitorial company renewed annually.
Ex:	Paint	Purchasing/procurement process, relationship with the manufacturer, agreement/contract with manufacturer
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		



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8.1 Operational Planning and Control (cont'd)

- Consistent with Life Cycle Perspective, organization **shall** :
 - Establish controls to ensure environmental requirements are addressed in the design and development process for the product or service, considering each life cycle stage
 - Determine its environmental requirements for the procurement of products and services
 - Communicate its relevant environmental requirements to external providers, including contractors
 - Consider the need to provide information about potential significant environmental impacts associated with its products' or services':
 - ✓ Transportation or delivery
 - ✓ Use
 - ✓ End-of-life treatment
 - ✓ Final disposal
 - Organization **shall** maintain **documented information** to the extent necessary to have confidence that the processes have been carried out as planned



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Environmental Requirements

- Environmental requirements are the organization's environmentally-related needs and expectations that it establishes for and communicates to interested parties.
- What are your organization's environmental requirements?



Example of Environmental Requirements

- Not use hazardous substances
- Recycle as much as possible
- Reduce waste brought into the facility (coupled with an objective of zero waste to landfill)
- Sell an organically-grown product
- Energy goal – env. req. that all new equipment has an energy monitoring device.
- When possible, use local vendors or products



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Environmental Requirements

- Determine your environmental requirements
 - Refer to your list of needs and expectations of interested parties.
 - Refer to your list of compliance obligations.
 - What kind of environmental requirements have you already established for your organization?
 - What kind of requirements are necessary to achieve your goals?



Establish controls, as appropriate, to ensure that its environmental requirement(s) is (are) addressed in the design and development process for the product or service, considering each life cycle stage.

- Example: you have an environmental requirement to minimize waste. Look at all the life cycle stages of the process for the product.
 - Can you minimize waste in the development of the product?
 - Can you minimize the packaging (both incoming and outgoing)?
 - Can you increase the longevity of the product to reduce the number that end up in the landfill?
- For each of these life cycle stages, implement controls to design and develop a product that meets your environmental requirements.





Determine its environmental requirement(s) for the procurement process of products and services, as appropriate.

- Example: a tobacco producer with an environmental requirement to only use organic, sustainably grown tobacco would need to establish controls to make sure the correct tobacco was purchased.





Communicate its relevant environmental requirement(s) to external providers, including contractors.

Organization's Environmental Requirements and Communication

	Environmental Requirement	What Controls are necessary to address the Environmental Requirement	Indicator for Implementation	Communicate to these External Providers
Ex	No hazardous substances used in the making of products	Specify "no hazardous substances" in contracts and procurement policy	Audit contractors on a yearly basis	Paint supplier, Janitorial Services
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Contractor Environmental Briefing Package

EF-08C

The < COMPANY NAME > Environmental Management System (EMS) is designed to meet the requirements of ISO 14001 Standard. The principle elements of the EMS and the environmental policy are:

1. to comply with all relevant environmental legislation and regulations
2. to continually improve environmental performance by setting and achieving goals
3. to protect the environment including prevention pollution

An important part of the < COMPANY NAME > EMS is for contractors and sub-contractors, who may have the potential to adversely affect the environment - to conduct their work in an environmentally responsible manner - and be aware of the following:

- Environmental policy,
- Relevant Objectives and targets,
- Importance of compliance with environmental regulations,
- Consequences of not conducting their work responsibly.

CONTRACTOR EMS REQUIREMENTS (Initial to the right, for each requirement)

Initials

- | | | |
|----|--|--------|
| 1 | Contractors shall not allow discharges to drains and/or sewers without prior approval from the Environmental Coordinator. | |
| 2 | Contractors shall provide adequate spill/release prevention for all bulk materials. | |
| 3 | Contractors shall immediately notify the <COMPANY NAME > Safety Committee Supervisor or Project Manager of any spills, releases, or other environmental incidents. | |
| 4 | Contractors shall immediately notify the Environmental Coordinator and the Project Manager of any abnormal conditions found during excavation at the facility. Visibly discolored soils, soils with a discernible odor, and/or heavily stained concrete must not be removed from the site without prior approval of the Environmental Coordinator. | |
| 5 | Contractors shall properly label, store, and dispose of all waste materials generated from their activities per Facility/Plant | |
| 6 | If <COMPANY NAME> personnel are required to work with potentially hazardous materials brought on-site by a contractor, prior approval of the material by the Environmental Coordinator is required. | |
| 7 | Contractors must be sensitive to the effects of noise, odor, light, fugitive dust emissions, and traffic movement to the facility and in the local community. | |
| 8 | Contractors shall be required to prepare and maintain records pertaining to the work performed in accordance with environmental regulatory requirements, including record retention requirements. | |
| 9 | Contractors shall ensure protection of the natural environment surrounding the work area. | |
| 10 | Contractor shall ensure that all employees are properly trained on such things as the proper handling of material and equipment, proper response to incidents involving their material and general information relating to the <COMPANY NAME> | |
| 11 | Have Read - Environmental Policy <<PLACE POLICY HERE ON REVERSE SIDE>> | |
| 12 | The contractor is responsible for communicating to all contractor personnel the above information | |
| 13 | If the contractor's work - has the potential to create a significant impact on the environment - then - the contractor is responsible for completing the Contractor Method Statement -and returning it to the Environmental Management Representative or designee. Is a Contractor Method Statement required for this work ? | Y or N |

WORK STOPPAGE: The Supplier/Contractor understands that the facility may interrupt Supplier/Contractor activities that violate the above requirements.

Contractor Name	
Contractor Company	
Contractor Signature	
Date	
<Witnessed by>	



Consider the need to provide information about potential significant environmental impacts associated with the transportation or delivery, use, end-of-life treatment and final disposal of its products and services.

- Example: An oil refinery, determines that the transportation and delivery of its product has potential significant environmental impacts. The oil refinery determines it needs to provide information to its transporters on the BMP to avoid potential significant impacts.
- Example 2: A company makes electronic equipment that could contaminate groundwater if it ended up in a landfill. The company determines it needs to communicate the potential hazard to the customer and therefore displays information about the need to recycle the product on the label. It also decides that any items replaced by the company will include a free-of-charge return shipping label so that the company can recycle the broken product.





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