EAGLE Certification Group

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ISO 14001:
Environmental Management System (EMS)
Prioritizing Aspects and Impacts

Intro to Aspects and Impacts & Risk

The following processes shared in this document are used to help manage the risk of environmental concerns or obligations. If implementing or managing the ISO 14001 standard, aspects and impacts will be part of the program. The relationship between the two can be viewed as follows: an aspect is what we do, and an impact is what it causes. To control the environmental footprint and better manage the risk of aspects and impacts, this document shares how to prioritize them to create a hierarchy for your actions.

Defining Aspects

First, let us consider an aspect. Shannon Leamon of Leamon Consulting, who helps companies with the implementation of ISO 14001 systems, defines an environmental aspect to be any part of your company's activities, products, or services that can interact with the environment, such as emissions, water use, waste, or energy consumption.

- Use of electricity in production
- Emissions from smelters or furnaces
- Use of water for cooling
- Waste generation from scrap metal
- Fuel used in company vehicles
- Noise from equipment

Aspects can also include inconspicuous items, such as the disposal of wood pallets, spray paint cans, fluorescent lights, and ink cartridges. Other aspects that warrant attention may be found in regulatory requirements and current Safety Data Sheets.

Defining Impacts

Now, consider the impact. Mrs. Leamon defines an impact as actual or potential changes to the environment resulting from those aspects, such as pollution, resource depletion, or habitat disruption.

- Air pollution from emissions
- Depletion of natural resources from electricity and fuel use
- Water contamination from chemical leaks
- Landfill waste from packaging or byproducts
- Contribution to greenhouse gas emissions

Aspect

Impact

Five Key Steps

Step 1: Define Activities, Products, and Services

List all the operations in your facility, from purchasing, smelting, and shipping, to maintenance and waste disposal.

Step 2: Identify Environmental Aspects

Ask: “Does this activity use resources, create emissions, generate waste, or affect land, water, or air?”

Step 3: Determine the Associated Impacts

For each aspect, ask: “What happens to the environment as a result?”

Step 4: Evaluate Significance

Assess how significant each aspect/impact is based on:

- Legal requirements
- Risk of harm to the environment
- Frequency or magnitude
- Stakeholder concerns

Step 5: Document and Review Regularly

Maintain a register of aspects and impacts and update it whenever operations or regulations change.

ISO 14001 & Risk

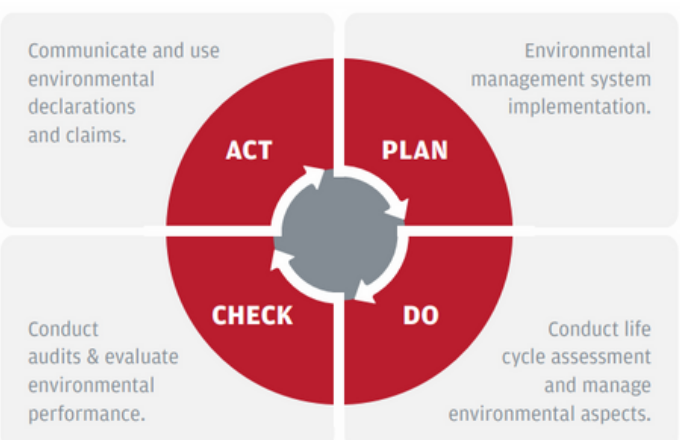
Your aspects and impacts will become part of your risk managed under ISO 14001. Risk management has guidelines shared in ISO 14004. Statements under the “effect of uncertainty,” include results from uncertainty which may be either positive or negative. Risk is characterized by potential events, their consequences, and likelihood of occurrence.

A positive outcome resulting from the management of aspects and impacts can be considered as an opportunity. In Section 3 of this same document, it states “Risks and opportunities refer to potential effects (threats) and beneficial effects (opportunities)”. To highlight the beneficial effect from an impact, consider the money saved from selling energy based on the utilization of solar panels.

Creating a Register

If there is a defined aspect, there is a corresponding defined impact. Once compiled, the initial list of aspects and impacts can be ranked to help manage them based on those most critical or significant to an operation. It could also provide ways to promote improvement in processes to support the bottom line and create a level of significance for planned actions.

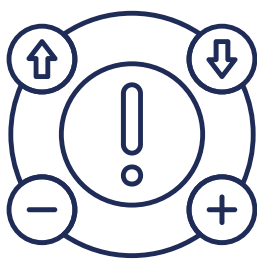
Once you have developed a list of your aspects and impacts, to help identify those considered significant and to establish a hierarchy of risk, you will need to create a way to evaluate the risk they pose. This can be referred to as a register and used as a management tool to establish the level of significance of your aspects and impacts, as well as help keep track of measurable goals. It should include as many of the identified risks as possible, even if it's pre-determined to be low. Simply adding an aspect/impact to a register does not increase its significance; an evaluation process will help determine this. Remember the opportunities for positive outcomes and consider the Plan-Do-Check-Act (PDCA) model to help maintain control over this register



Using FMEA

One tool that can be used to develop a risk register is Failure Mode Effects Analysis (FMEA). This is often used in Quality Management Systems and can be modified with your own variation. FMEA-based templates focus on detection, severity, and probability as key inputs. Three questions FMEA can present are: how severe is the effect, how likely is the occurrence, and how easily can it be detected? These all contribute to creating a risk number.

These three questions posed by FMEA can also be applied to risk mitigation in an environmental system to prioritize factors such as the consequence of an event happening, the likelihood of it occurring, and the ability to detect it. Considering these three factors will help determine the significance of the aspects and impacts, and level of risk.



Scoring Criteria

Jennifer Koenig, CHMM, Owner of ECS Audit & Compliance Services LLC, focuses on three criteria to create a register and determine significance: Regulatory, Operational Control, and History. Based on the importance of these three criteria, a score is created that will reflect the significance of each. She recommends starting with the department or process that touches any aspect or impact when creating the list to be scored. One would consider the entire facility, but departments may be listed as not applicable. The numbers used to manage an outcome can effectively be between 0-5.

For instance, in this way, Jennifer considers a score of “1” under Regulatory to indicate there is a regulatory obligation, but no threshold is met that requires activities such as permitting, reporting, etc. Conversely, a score of “5” represents a complex regulatory program or permit applicable.

She also recommends maintaining notes which could justify a particular score assignment. One example is oil, where a requirement exists for an SPCC program, and along with the selected score of “4”, a note could be added such as “SPCC Program implemented 2025”. This may be especially helpful for newly identified requirements that might not be well known across the organization.

Evaluating Controls

For the Regulation score, Jennifer recommends looking into factors based on the complexity of applicable local, state or federal regulations. She considers legal and other compliance obligations for this input as well.

Under Jennifer's approach, the level of Operational Control of the aspects and impacts is identified. She justifies the assigned number with statements outlining the safeguards and controls in place to manage the risk. While a risk may initially be a high ranking or more significant, it may be so well controlled that it becomes a low risk. This is a consistent methodology for evaluating residual risk.

Jennifer utilizes a "hierarchy of controls" approach, which has a premise that the more automated a control is, the more likely it is to stay in place and to be effective. Her reasoning is that the higher ranked controls are those which could be in jeopardy when a change occurs. She also considers Past Performance. In this way, it helps her clients predict a future event. If a risk is controlled to a low risk level but continually shows up with incidents or regulatory exceedances related to it, then a multiplier could be considered to elevate a score for better foresight.

To create a risk score, a formula can be adopted such as regulation factor + (operational control x past performance). This provides some numerical differentiation within a list and helps the significant risks rise to view. Based on the severity of the aspect or impact, or other factors, additional considerations/ factors can be incorporated into the score

Final Guidance

Using these three criteria, a spreadsheet for management purposes could be created to resemble the following:

Department/Process	Aspect	Impacts	Notes on Ranking	Regulation Factor	Operational Control Factor	Past Performance Factor	Weighting Formula 1 (d+e X f=g) Significant=11+
Plant-wide	natural gas	depletion of natural resources, greenhouse gas emissions, air pollution		1	1	1	2
	electricity usage	depletion of natural resources, greenhouse gas emissions, air pollution		1	1	1	2
	water usage	depletion of natural resources		1	1	1	2

This model can be expanded upon, but the principle behind developing such a tool will be the same. It should be a controlled document where all your environmental concerns can be acknowledged and prioritized.

For more detailed information on risk management considerations, review IEC 31010. This International Standard provides guidance on risk assessment techniques and is designed to be used alongside ISO 31000, providing practical guidance on the risk assessment component of the broader risk management framework. IEC 31010 covers the process of identifying potential risks, analyzing their causes and consequences, and evaluating their likelihood and severity.

About EAGLE Certification Group

Since 1994, EAGLE has built a reputation on providing third party auditing services that are objective and value-added. Based in Dayton Ohio, our competent, industry-experienced auditors are well-versed in helping clients ensure their quality, environmental, health and safety, or food safety management systems are robust and effective. EAGLE is ANAB-accredited and a certified, woman-owned business through the Women's Business Enterprise National Council (WBENC). EAGLE is the North American member of IQNET, a leading international association of certification bodies and fully committed to the global IAF Cert Search database, resulting in transparency and confidence that clients can trust.

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