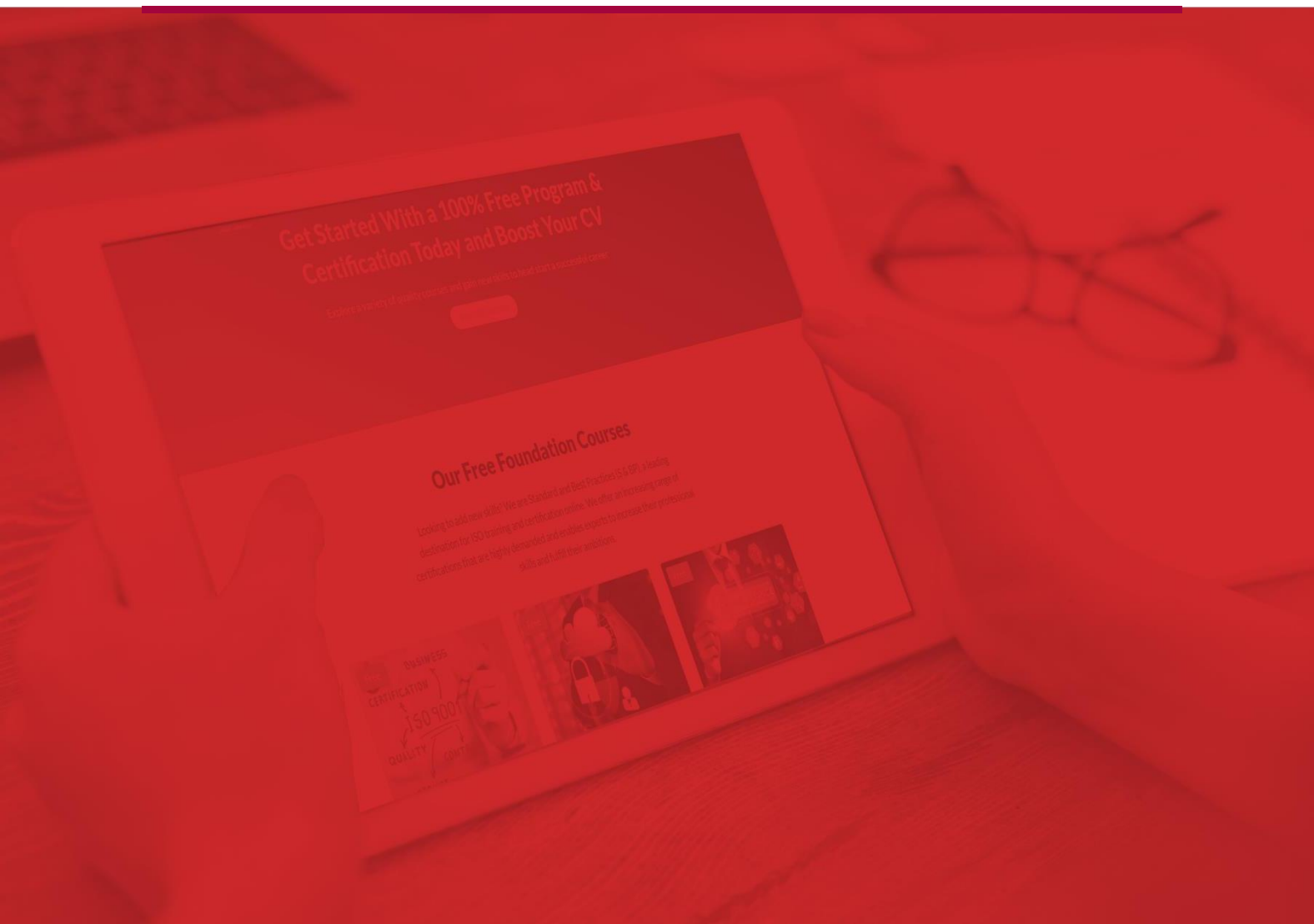




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SBP ISO 14001:2026 (EMS) FOUNDATION COURSE- CASE STUDIES





Case Study 1: Reducing Energy Consumption at a Manufacturing Company

Organization Background

GreenTech Manufacturing Ltd. is a medium-sized company that produces plastic components for the automotive industry. The company operates a production facility with several injection-moulding machines, air compressors, lighting systems, cooling equipment, and office spaces.

The facility operates six days a week, with some production activities running for extended hours. Electricity is one of the company's major operating expenses.

The Environmental Issue

During its annual review of operational costs, top management noticed that electricity expenses had increased significantly over the previous year. The increase could not be fully explained by increased production.

The organization decided to investigate further.

A review of its operations identified several issues:

- Production machines remained switched on during long periods of inactivity.
- Lighting was left on in unoccupied areas.
- Compressed air leaks were wasting energy.
- Some older equipment consumed significantly more electricity than newer alternatives.
- Employees had limited awareness of how their daily activities affected energy consumption.
- The organization did not regularly monitor energy consumption by department or production area.

The organization recognized that **electricity consumption was an environmental aspect** of its operations. The use of electricity contributed to resource consumption and indirect environmental impacts associated with energy generation.

Risks and Opportunities

The company identified several risks associated with continued high energy consumption:

- Increasing operating costs.
- Inefficient use of resources.
- Increased environmental impact.
- Failure to achieve the organization's environmental commitments.



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- Reduced competitiveness due to unnecessarily high production costs.

However, management also identified opportunities. Improving energy efficiency could reduce costs while improving environmental performance.

Actions Taken

The organization decided to establish an environmental objective:

Reduce total electricity consumption by 10% within 12 months.

To support this objective, management developed an action plan that included:

- Assigning responsibility for energy monitoring to the facilities manager.
- Recording electricity consumption monthly.
- Inspecting equipment for unnecessary energy use.
- Repairing compressed air leaks.
- Introducing shutdown procedures for equipment not in use.
- Installing more energy-efficient lighting in selected areas.
- Providing employees with awareness sessions on energy conservation.
- Reviewing opportunities to replace inefficient equipment.

Operational controls were introduced to ensure that employees understood when equipment should be switched off and who was responsible for monitoring energy-related activities.

Monitoring and Review

The company began comparing monthly electricity consumption against previous performance and its reduction target.

After six months, the organization had achieved a 6% reduction in electricity consumption. However, the review showed that one production area continued to consume unusually high amounts of energy.

Further investigation revealed that equipment in that area was regularly left operating during production breaks.

Management took additional action by improving supervision and providing further employee awareness.

By the end of the 12-month period, the organization achieved an 11% reduction in electricity consumption.

Outcome

The project resulted in:



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- Reduced electricity consumption.
- Lower operating costs.
- Greater employee awareness.
- Improved monitoring of environmental performance.
- Better control over energy-related activities.

The organization also identified further opportunities to improve energy efficiency in future years.

ISO 14001 Concepts Demonstrated

- Environmental aspects and impacts.
- Risks and opportunities.
- Environmental objectives.
- Roles and responsibilities.
- Awareness.
- Operational planning and control.
- Monitoring and measurement.
- Management review.
- Continual improvement.

Key Lesson

Environmental improvement is most effective when an organization identifies the issue, establishes a clear objective, assigns responsibility, implements actions, measures results, and uses the information obtained to drive further improvement.



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Case Study 2: Improving Waste Management at a Construction Company

Organization Background

BuildRight Construction Ltd. is a construction company involved in commercial and residential building projects. Its activities include excavation, concrete work, steel installation, carpentry, painting, electrical work, and finishing activities.

The company operates several project sites simultaneously, with different teams, contractors, and suppliers working at each location.

The Environmental Issue

During a site inspection, the environmental manager observed large quantities of mixed waste being collected in the same disposal containers.

The waste included:

- Wood.
- Metal.
- Plastic.
- Cardboard.
- Concrete debris.
- Packaging materials.
- Unused construction materials.

Because the waste was mixed, much of it was sent directly for disposal rather than being reused or recycled.

Further review showed that:

- Different project sites followed different waste practices.
- Employees had not received consistent instructions on waste segregation.
- Waste containers were not clearly labelled.
- Reusable materials were sometimes discarded.
- The company did not measure how much waste it generated.
- Site managers focused mainly on completing projects quickly and did not always consider waste reduction.

The organization recognized **construction waste generation as an important environmental aspect.**

Risks and Opportunities

Poor waste management created several risks, including:



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- Increased waste disposal costs.
- Unnecessary use of natural resources.
- Increased environmental impacts associated with disposal.
- Potential non-compliance with applicable waste management requirements.
- Loss of reusable and recyclable materials.

At the same time, the organization identified opportunities to reduce waste, improve material efficiency, and reduce disposal costs.

Actions Taken

The company introduced a more structured approach to waste management.

It established requirements for project sites to:

- Segregate different categories of waste.
- Provide clearly labelled waste containers.
- Identify opportunities to reuse materials.
- Separate recyclable materials from general waste.
- Use approved waste contractors where required.
- Keep relevant waste records.

The organization also provided awareness sessions for:

- Site managers.
- Supervisors.
- Construction workers.
- Relevant contractors.

Employees were informed about the environmental importance of waste segregation and their individual responsibilities.

The environmental manager worked with site teams to monitor the amount of waste:

- Reused.
- Recycled.
- Sent for disposal.

A Problem During Implementation

After several months, monitoring showed that one major construction site continued to send large quantities of mixed waste for disposal.

A site inspection found that although waste containers were available, some employees and contractors were not following the segregation requirements.

The site manager organized additional training and introduced more frequent inspections.



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Responsibilities were also clarified to ensure that waste practices were monitored throughout the project.

Outcome

Over time, the organization achieved:

- Improved waste segregation.
- Increased reuse of suitable materials.
- More materials sent for recycling.
- Reduced general waste disposal.
- Improved employee awareness.
- Better consistency across project sites.

The company also used the information gathered to identify projects and activities that generated the highest levels of waste.

ISO 14001 Concepts Demonstrated

- Environmental aspects and impacts.
- Context and operational issues.
- Environmental risks and opportunities.
- Compliance obligations.
- Operational planning and control.
- Competence and awareness.
- Communication.
- Monitoring and measurement.
- Environmental performance.
- Continual improvement.

Key Lesson

Environmental controls are only effective when they are understood and consistently applied during day-to-day operations. Providing procedures alone is not enough; organizations must also ensure awareness, responsibility, monitoring, and follow-up.



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Case Study 3: Preventing and Responding to a Chemical Spill at a Food-Processing Facility

Organization Background

FreshFoods Processing Ltd. produces packaged food products. Cleaning and sanitation are essential parts of its operations, and the facility uses several cleaning and disinfecting chemicals.

These chemicals are delivered to the site, stored in a designated area, and used by trained cleaning personnel.

The Environmental Issue

As part of its environmental review, the organization examined activities that could potentially cause significant environmental impacts.

The review identified the **storage and handling of cleaning chemicals** as an environmental aspect.

If chemicals were improperly stored or handled, a spill could potentially result in:

- Soil contamination.
- Water pollution.
- Harm to nearby ecosystems.
- Improper chemical disposal.
- Failure to meet applicable environmental requirements.

Although no major environmental incident had occurred, management recognized the need to control the risk before a problem developed.

Actions Taken

The organization introduced several controls, including:

- Designated chemical storage areas.
- Appropriate labelling of chemical containers.
- Storage arrangements to reduce the likelihood of leaks and spills.
- Spill response equipment.
- Procedures for handling chemicals.
- Training for employees who handled chemicals.
- Instructions for reporting leaks and spills.
- Periodic inspections of storage areas.

The organization also developed emergency response arrangements for potential environmental incidents.



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Employees were informed about what to do if a chemical spill occurred, including who to notify and how to prevent the spill from spreading.

The Incident

Several months later, an employee accidentally damaged a container while moving it within the storage area. A small quantity of chemical was released onto the floor.

The employee immediately followed the established response procedure.

The area was secured, the spill response materials were used, and the supervisor was notified. The organization ensured that the spilled material and contaminated clean-up materials were handled appropriately.

The spill was prevented from reaching external drains or surrounding soil.

Investigation and Corrective Action

Although the immediate environmental impact was limited, the organization investigated the incident.

The investigation found that:

- The employee had received the required training.
- Spill response equipment was available and used correctly.
- The emergency response arrangements worked effectively.

However, the investigation also identified that the method used to move larger chemical containers created an unnecessary risk of damage.

The organization took corrective action by:

- Reviewing the handling method.
- Providing more suitable equipment for moving containers.
- Updating relevant handling instructions.
- Sharing lessons learned with other employees.

Outcome

The incident demonstrated that environmental risks can still materialize even when controls are in place. However, because the organization had identified the risk and prepared for potential emergencies, the spill was quickly contained.

The organization used the incident as an opportunity to improve its controls.

ISO 14001 Concepts Demonstrated



ISO 14001:2026 (EMS) FOUNDATION CASE STUDIES

- Environmental aspects and impacts.
- Environmental risks and opportunities.
- Operational planning and control.
- Competence.
- Awareness.
- Documented information.
- Emergency preparedness and response.
- Monitoring and review.
- Nonconformity and corrective action.
- Continual improvement.

Key Lesson

Identifying environmental risks before an incident occurs enables an organization to establish appropriate controls and prepare an effective response. When incidents do occur, they should also provide an opportunity to learn and improve.