

4.4.6 OPERATIONAL CONTROL

OPERATIONAL CONTROLS DEFINED

Operational controls are the various ways by which an organization can prevent pollution from its operations. Controls include:

- Equipment such as scrubbers, filters, precipitators, clarifiers, biological and chemical treatment to remove or reduce emissions and discharge levels
- Alarms and shut-off valves activated by in-line monitors such as pH, specific conductance, temperature, opacity, gas concentration, liquid level in a tank
- Routine preventive maintenance programs designed to stop problems that could impact the environment before they occur
- Operating procedures – documented or verbal.

ISO 14001 REQUIREMENTS FOR OPERATIONAL CONTROL

Many people, and even organizations implementing an ISO 14001 EMS, think that element 4.4.6 of the Standard is all about producing reams of documented operating procedures. In fact, the opposite is true. This element is at least as concerned with the proper installation and operation of appropriate and effective pollution control equipment and procedures as it is with written material.

The Standard states that a documented procedure is needed only if a pollution problem may occur

without one. In other words, if an operation is running smoothly, there is no need to impede it with unnecessary documented procedures.

ISO 14001 4.4.6 OPERATIONAL CONTROL says:

The organization shall identify those operations and activities that are associated with identified significant environmental aspects in line with its policy, objectives and targets. The organization shall plan these activities, including maintenance, in order to ensure that they are carried out under specified conditions by:

- (a) establishing and maintaining documented procedures where their absence could lead to deviations from the environmental policy and objectives and targets
- (b) stipulating operating criteria in the procedures
- (c) establishing and maintaining procedures related to the identifiable significant environmental aspects of goods and services used by the organization and communicate relevant procedures and requirements to suppliers and contractors.

ISO 14001 4.4.6 Operational Control Interpreted

This element of the Standard refers to the need to identify key operations and activities associated with significant environmental aspects, which must be controlled to: (i) prevent pollution, (ii) comply with legal and other requirements, (iii) continually improve, and (iv) achieve objectives and targets.

Controls may take the form of:

- Electronic or mechanical technology to reduce emissions
- Routine preventive maintenance programs to reduce wear and breakdown of equipment
- Monitoring and observation of equipment performance and pollutant levels.

The Critical Role of Preventive Maintenance

Preventive maintenance is one of the most overlooked assets in an EMS, especially in developing countries. Much time, effort, and money could be saved if organizations invested more in routine maintenance procedures to stop problems before they appear. Losses of materials, chemicals, fuel, product, time, and money could be avoided from:

- Leaking connections, valves, pumps, pipes, tanks
- Breakdown of machinery, pumps, pollution control equipment
- Blocked pumps, pipes, valves, and other equipment
- Incorrect instrument readings due to poor calibration
- Catastrophic failures, explosions, burst pipes and tanks, and fires.

A BRIEF PRIMER ON DOCUMENTED PROCEDURES

If they add value, documented procedures are another contribution to operational controls. In addition to the requirement in ISO 14001 prescribing a documented procedure if the absence of one could lead to deviations from the environmental policy and objectives and

targets (i.e., if there is a risk of pollution occurring), a procedure also should be documented when an activity is complicated, done infrequently, done by different people at different times, or has sensitive operating variables. A documented procedure helps to achieve consistency; clearly specifies operating conditions, limits, targets, and precautions; and is useful when training new operators.

A procedure is an activity carried out in accordance with specified instructions. A procedure defines who has the authority and responsibility to conduct the activity, what resources are needed, when the activity is to be done, and a sequence of tasks to complete the activity. Operating procedures are classified as Level 3 (SOP) and Level 4 (Work Instructions).

The following list contains organizational functions that may benefit from documented EMS operating procedures. Some of them do not have obvious environmental sensitivity, but in fact all play a role in a well-designed EMS:

- Production/manufacturing
- Maintenance
- Raw material procurement
- Transportation of raw materials to the facility or products from it
- Handling and storage of raw materials and product
- Purchasing and shipping/receiving
- Management of contractors and suppliers
- Waste treatment, waste disposal, recycle, re-use
- Laboratory operations – sampling, analysis, calibration, cleaning

- Start-up and shut-down of equipment, facilities, or processes
- Research, development, design, engineering, construction
- Decommissioning of equipment and facilities.

Developing a Documented Procedure – Who and How

Operational analysis is a useful tool for deconstructing an activity, and breaking it into constituent tasks. The best people to do this are those who are involved day-by-day in doing the actual work. Select the 'star operators' in a functional area and draw on their experience and know-how. Managers and supervisors should also be involved but must not be allowed to dominate the analysis (a difficult role to adopt in many cultures). When an activity has been dissected into the simplest possible tasks, each step is written down in sequence, and this becomes the documented procedure. The format for a procedure was outlined in an earlier lesson on Document Control.

A word of caution. A procedure, whether documented or not, is what is actually done. If actual practice differs from a written procedure, it is the real-life actions that constitute the procedure – the documented version becomes theory only.

Responsibilities of Contractors and Suppliers

An organisation is responsible for environmental impacts caused by contractors and suppliers on its property. It is incumbent on the organisation, therefore, to ensure that all contractor and supplier personnel are aware of the requirements of the EMS, and abide by them. This is why

environmental awareness training programs should be developed for temporary on-site personnel.

SUMMARY OF KEY POINTS

- Operational controls include pollution control equipment, alarms, preventive maintenance, and operating procedures.
- Preventive maintenance makes critical contributions to operational control and the prevention of pollution.
- ISO 14001 requires a documented procedure if the absence of one could cause environmental problems.
- Documented procedures define roles, responsibilities, authority, and operating criteria; help to achieve consistent performance; and can be useful for training.
- A procedure should be documented only if the written version adds value.
- Operational analysis is a helpful technique to break down an activity into its component tasks in preparation for documenting them.
- Local 'experts' are the best source of know-how in operational analysis.
- Documented procedures should have a standard format and style.
- Requirements of the EMS must be communicated to contractors who are on-site and to suppliers.