

Environmental management assignment



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Design for the Environment Guide High performance ISO 14001

Environmental Management Systems The ISO 14001 Environmental Management System (MESS) can be optimized by emphasizing resource efficiency and cleaner production. Advantages of building this high performance into your ISO 14001 system include reduced production costs, efficient use of materials and resources, and improved public image. This guide sheet includes examples of high performance systems from a variety of ISO 14001 MESS certified organizations.

Lockheed Martin Aeronautics Company, developer of the F-22 Advanced Tactical Fighter, has had an environmental management system in place since 1992. What is ISO? The International Organization for Standardization (ISO) has created more than 8,000 internationally recognized standards for everything from paper sizes to film speeds. ISO, which was founded in 1947 in Geneva, Switzerland, now has over 120 countries as members. What is the ISO 14001 standard?

The development of the ISO 14001 Environmental Management System (MESS) standard was initiated in 1992 after the need to promote a common, international approach to environmental management was recognized.

Earlier successful implementation of the ISO 9000 quality standards paved the way for expansion into the creation of MESS standards. ISO 14001 is a standardized environmental management system that has a number of requirements listed in clauses and subclasses. The MESS does not set requirements for environmental compliance or specific levels of pollution prevention.

It does however, establish an MESS that includes all employees and builds in accountability, consistency, and continual improvement. The concept behind environmental management systems is based upon the plan-do-check-act model? environmental activities are planned (plan), they re carried out (do), progress is checked (check), then efforts are adjusted accordingly (act).

Optimizing IS 4001 MESS clauses The ISO 14001 MESS standard contains four main sections, or clauses. The first three clauses contain a definition of the scope, space for normative references, and definitions.

The fourth clause contains the environmental management system requirements and expectations of the standard. Under each subclasses, examples Adoption of an MESS at an organization can yield varying levels of success depending upon how the system is initially established. The greatest opportunities for optimizing n MESS system can be found in the following five subclasses of the MESS requirements (clause 4): environmental policy; environmental aspects; planning objectives and targets; training, awareness and competence; and operational control.

These subclasses identify and establish activities directly related to environmental performance. Are given from companies that have moved beyond compliance to optimize the system by including: resource efficiency waste reduction cleaner production ISO 14001 MESS 4. 2 Environmental Policy According to ISO 140001 subclasses 4. 2, top management is the “ definer of the environmental policy for the system. ” The environmental policy must include a commitment to comply with regulations, and be available to the public in addition to other basic requirements.

Examples of language used by successful MESS implementers in their policy statements to optimize their ISO 14001 systems are provided below. IBM Corporation. The IBM Corporation in San Jose, California, includes the following statement in their policy, “ Use development and maturing processes that do not adversely affect the environment, including developing and improving operations and technologies to minimize waste, prevent air, water, and other pollution, minimize health and safety risks, and dispose of waste safely and responsibly. This policy commitment to minimize waste has contributed to a number of environmental benefits. These benefits include an annual 73 percent reduction in solid waste and a 4 percent reduction in energy use per year in the facility. L Lockheed Martin Aeronautics Company. A section of the policy for the ISO 14001 MESS at Lockheed Martin Aeronautics Company in Palmdale, California, states, “ Prevent pollution, conserve resources, reduce waste, and recover or recycle resources where economically feasible.

By implementing this policy, Lockheed Martin has been able to: eliminate ozone depleting compounds reduce emissions of volatile organic compounds (VOCs) by 80 percent reduce overall hazardous waste generation by 91 percent reduce toxic release inventory (TRI) chemicals by 91 percent In addition to these environmental benefits, the company has also benefited financially. After implementing ISO 14001, the company’s hazardous waste disposal costs decreased from in 1991 to \$375, 000 in 1998. 1 Lucent Technologies.

The ISO 14001 MESS policy at Lucent Technologies-Microelectronics Group in Allentown, Pennsylvania, includes a focus on pollution prevention. “ Lucent
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has achieved significant environmental cost benefits through its MESS. ”

Along with materials recycling, Lucent has been able to reduce waste by: eliminating 4, 100 metric tons of greenhouse gas emissions annually avoiding the use of 1 55, 000 gallons of water daily reducing energy use by 35, 000 million Btus annually As a result of these efforts, Lucent has benefited from annual cost savings of \$800, 000. 4. 3. 1 Environmental Aspects (Planning) This subclasses requires an organization to identify aspects such as activities, reduces, or services that interact with the environment. Impacts on the environment that result from these aspects are then identified and ranked by significance. Determination of the company’s environmental aspects can lead to future potential cost savings by identifying wastes and inefficiencies beyond those associated with regulatory concerns. Lockheed Martin Aeronautics Company. At ELM Rare-Palmdale (Lockheed Martin), in order to identify which of their aspects have a significant impact, aspects are evaluated in terms of environmental safety and health impacts as well as business impacts. The probability of an impact occurring and the environmental constituted on next page sign tort the Environment quince of that impact are ranked low, medium, or high. Business impacts are evaluated in terms of compliance, costs, and stakeholder interest/concern and are also ranked low, medium, or high.

The two scores are combined on a risk/significance matrix which yields a significance. Through this analysis, ELM Rappelled better understands the risk and significance of their environmental impacts and designs management responses accordingly. The capacity of an organization to know and understand the environmental impacts of their regulated and

unregulated activities is another indicator of an improved system for public and environmental protection. “ I Pfizer Inc. A pharmaceutical manufacturer in Elitist, Pennsylvania, has integrated pollution prevention into their environmental aspects and impacts evaluations. One of the significance rankings for consideration of an environmental impact is based upon the amount of pollution prevention opportunities associated with it. 3 Pfizer 4. 3. 3 Objectives and Targets (Planning) Environmental objectives are overall quantified goals that an organization sets for itself. Targets identify specific detailed actions that need to be set in order to achieve the objectives.

The IBM-San Jose facility and the Artistic Plating plant offer examples of objectives and targets that go beyond legal requirements. IBM Corporation. “ IBM- San Joke’s MESS demonstrates the potential to drive environmental performance beyond regulatory requirements through aspect and impact identification and objective and target setting. All of Bambina Joke’s objectives and targets achieve results that are not compliance related or compliance driven. “ I The following table lists the facility aspects/impacts and objectives/targets.

Aspect/almanac	Objectives/Targets
Energy use	Conserve 4% electrical usage
(kHz) Solid waste	Recycle 73% of solid waste
Recycle Water use to industrial waste	Track site water use and trends
Transportation (employee)	Increase CEO Pass users by 10%, Commuter Check users by 25%
Products (environmental impacts)	Various objectives covered under Environmentally Conscious Product Strategy
Water discharge	Reduce wastewater discharge year to year indexed to production
Chemical use	Establish chemical use

reduction committee and set target Hazardous waste discharges Reduce disposal amount year to year indexed to production

Taken from California EPA, Report to Legislature: Seventh Quarterly Update, Cot. -May 2001 Artistic Plating. At the Artistic Plating plant in California, significant aspects were identified, targets were set, and the management system was established. As a result, the company was able to: eliminate the use of parenthetically reduce nitric acid use by 62 percent reduce the use of chrome, cyanide and liquid chrome by 50 percent According to the company, “... Overall of the performance enhancements went beyond legal requirements, suggesting the reason for the achievement is the MESS, and the recess it established. “ 1 4. 4. 2 Training, awareness, and competence (Implementation) Appropriate training for employees in relation to their roles and responsibilities can generate environmental benefits for the organization. The emphasis and degree of this training determines how effective it will be. Plant in Fairfield, California, attributes its significant progress in water conservation to comprehensive training.

Through the training program, employees become aware of the impact that their Job assignments and duties have on the environment. This impact is recognized in the company’s Standard Operating Procedures. Better awareness by employees of the environmental impacts of their Jobs and the environmental objectives articulated in their MESS appears to have resulted in the Enhances-Busch Fairfield brewery being the lowest water user and wastewater discharger within Enhances-Bush’s 12 breweries. “ I Enhances-Busch.

The Enhances- Busch 4. 4. 6 Operational Control (Implementation)

Operational controls ensure that activities associated with significant environmental aspects are in line with the organization's environmental policy, objectives, and targets. This subclasses ensures that procedures along with operating criteria are commenced and maintained so that objectives and targets are met. Optimized operational controls such as those at Lockheed Martin Rare-Palmdale can lead to significant benefit. Lockheed Martin Aeronautics Company. At ELM Rare-Palmdale, chemical management and disposal are significant aspects and require extensive control. The major subclasses of the chemical control program involve the Chemical Control Board (CB) and the chemical control cribs. ... Their review includes an analysis of the SHE risk involved with the chemical, the need for the chemical, and a search for less toxic alternatives. The daily use of chemicals is racked and managed through a system of chemical control cribs. ... Internally, the package-by-package tracking of chemical use provides operational control. .. The crib process also contributes to meeting pollution prevention goals. The accounting system reduces chemical usage and waste by ensuring that only necessary amounts of chemicals are provided to employees. This also has reduced the amount of chemicals that become waste due to shelf-life expiration. " I Summary An ISO 14001 MESS builds ready access to documentation, consistency, accountability, and continual improvement into facility operations. It also offers a significant opportunity to drive resource efficiency, cost savings, and improved public relations.

The examples describe companies that built language into their MESS to take them beyond the minimal requirements to leverage this opportunity for

resource efficiency and cleaner production. A common principle to all these companies was the establishment of clear, measurable objectives to drive performance improvements

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