

Assisting Indiana Electroplaters Develop and Implement an Environmental Management System (EMS)

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Five Indiana electroplaters, all SGP participants, are participating in the Indiana Electroplaters EMS Initiative. Working with the Indiana Clean Manufacturing Technology and Safe Materials Institute (CMTI), these five participants will develop and implement an EMS over an eighteenmonth time period (April 2003 – September 2004). The process includes quarterly group meetings along with one-on-one meetings with CMTI. The goal is to have all participants ISO 14001 certified. This paper will discuss the progress of the participants during the initiative as well as discuss challenges and accomplishments encountered during the program.

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Introduction

Organizations have been managing the impact on the environment created by their manufacturing processes for decades. After the U.S. Environmental Protection Agency (EPA) was created in 1969, the management of the adverse impacts took on a totally new aspect. Organizations now had to comply with rules and regulations or face stiff penalties. Keeping up-to-date with regulations that applied to their facility became uncharted territory, and was not an easy task. Historically, it became the job of one individual to accomplish this by whatever means necessary.

The ISO 14001 standard, finalized in 1996, provides organizations with a structured approach for managing environmental and regulatory responsibilities to improve their overall environmental performance. It includes requirements to comply with environmental regulations, identify those environmental regulations that pertain to the organization, and to periodically evaluate compliance with those environmental regulations.

The ISO 14001 standard's framework is plan, do, check, and act. It requires a commitment from top management for continual improvement, prevention of pollution, and to comply with relevant environmental regulations. It also requires that top management review the EMS periodically to ensure its continuing suitability, adequacy and effectiveness. These requirements, along with the requirement that individuals who perform operations that could produce a significant impact upon the environment receive proper training, remove the burden from that lone individual to ensure regulatory compliance, and puts it squarely upon the entire organization.

The ISO 14001 standard has fifty-two (52) "shall" statements that must be met before an organization can be registered. Three of these "shall" statements concern regulatory compliance. Although only three of the "shall" statements deal directly with regulatory compliance, the others are there to ensure that these three are met. This is the premise of the plan, do, check and act framework of the standard.

Five Indiana SGP electroplaters were interested in developing and implementing an ISO 14001 EMS to assist them in complying with environmental regulations and managing their environmental impacts in an economical and technologically feasible way. CMTI offered to assist these five organizations develop an implement an EMS that conforms to the ISO 14001 standard over an eighteen-month period. Four electroplaters are continuing to work with CMTI, and are now in the third quarter of the program.

Process

The eighteen-month schedule for developing an EMS has been successfully used by EPA in past pilot programs. CMTI decided to adopt this schedule as it allowed the participants sufficient time to develop and implement the EMS within a timeframe that would not seem indeterminable.

Participants meet once per quarter to discuss what was accomplished during the prior quarter and what should be accomplished over the next quarter with the goal of having an ISO 14001 compatible EMS by the end of the project. These quarterly meetings give the participants an opportunity to ask questions regarding their EMS development and implementation as well as giving them the chance to discuss their own successes and setbacks. The components of an EMS are divided among the quarterly accomplishments to reduce the feeling of being overwhelmed by the EMS development and implementation procedure.

The first meeting consisted of becoming familiar with the ISO 14001 Standard by discussing its core elements. The participants learned how to start the EMS development procedure by examining how other organizations began the process. The participants saw examples of what worked and what did not work for other organizations, and hopefully were able to incorporate the successes and avoid the mistakes of others as they worked towards the goal of developing an EMS.

During the first quarterly meeting, the participants also reviewed the roles and responsibilities of the EMS champion and the core team involved in creating the EMS. They discussed methods for ensuring top management involvement, getting employee buy-in and how to make everyone aware of their roles and responsibilities regarding the EMS. Other topics discussed during the first session included mapping "fenceline" operations, collecting data, conducting a gap analysis, and information resources. The deliverable for the second quarterly meeting was an Environmental Policy.

Prior to the second quarterly meeting, CMTI visited the four participants' facilities to conduct a gap analysis. A gap analysis is conducted by reviewing the fifty-two shall statements that exist in the ISO 14001 Standard and indicating which ones are missing from the organization's current program. It is an excellent tool to further educate the participant about the ISO 14001 core elements in addition to pointing out to them that the majority of the core elements already exist and only need to be formalized. All four organizations had in place procedures that would fulfill most of the fifty-two shall statements. The organizations needed to tweak these procedures so that they would conform to the ISO 14001 Standard.

The second quarterly meeting began by reviewing everyone's Environmental Policy statement to ensure that it met the standard's requirements. Specifically, the statement must have a commitment to prevention of pollution, continual improvement, and compliance with environmental regulations. It must also include the framework for setting environmental objectives and targets and be applicable to the facility. The participants critiqued the policies, and discussed methods to improve and/or ensure that all ISO requirements are met. After reviewing the Environmental Policy statements, the participants learned about environmental aspects and impacts and how to identify them. Examples of how other organizations identified environmental aspects and impacts and procedures used to determine significance of these aspects and impacts were also discussed. Additionally, participants discussed methods for identifying legal environmental requirements and how to write and control procedures to satisfy the standard's requirements. How to determine objectives and targets based upon the organization's aspects and impacts was also discussed. The deliverables for the third quarterly meeting were written procedures for identifying aspects, impacts and their significance, procedures for identifying legal requirements, procedures for determining objectives and targets, a list of significant aspects, and a list of objectives and targets. Identifying aspects and impacts can be an overwhelming task, and CMTI volunteered to assist each participant individually during the process, but none of the participants accepted the offer. All participants had identified their aspects and impacts as well as determining significance of these aspects and impacts by the third quarterly meeting.

The third quarterly meeting consisted of reviewing the deliverables from the second quarterly meeting. All deliverables were suitably accomplished and the next steps were discussed. The participants continued with the EMS process by discussing how to establish environmental management programs that detail how the objectives and targets will be accomplished, structure and responsibility matrixes for environmental concerns, operational controls procedures for those operations that can create a significant impact on the environment, training procedures for employees operating processes that can create a significant impact on the environment as well as EMS awareness training for all employees, internal and external communication procedures regarding the EMS, emergency and response procedures, and document and records control procedures. The deliverables for the fourth meeting will be these procedures and environmental management programs for the objectives and targets established over the past quarter.

The fourth quarterly meeting will again review the deliverables from the previous meeting, and determine whether or not all participants are ready to proceed to the next steps in developing the EMS. If the majority of the participants are not ready to proceed, the group will review and discuss the necessary steps required to achieve the third quarter deliverables. If the majority of participants are ready to proceed, then the group will discuss the next steps and CMTI will personally visit those participants that are not ready. The next steps are to develop methods to monitor and measure the results of the environmental management programs in addition to the key characteristics of all significant aspects. Then group will also discuss methods to conduct internal EMS audits and conduct management reviews of the EMS. The deliverables for the fifth quarterly meeting will be procedures for monitoring and measurement, EMS internal audits and management review of the EMS.

The fifth quarterly meeting will review the procedures for monitoring and measurement, EMS audits and management review. If these procedures conform to the standard and all participants fully understand the procedures, the group will discuss how to implement the EMS that they have developed over the past year. Discussions will include the pros and cons of ISO certification, how to become certified, and examples of both positive and negative experiences of other facilities that have gone through the certification process.

Prior to the scheduled sixth quarterly meeting, CMTI will contact each participant to evaluate the implementation process. A sixth meeting will be scheduled if the participants are experiencing

difficulty in implementation of the EMS. If implementation is progressing smoothly, CMTI will schedule an EMS audit using the ISO 14001 standard as the criteria for the audit. This audit will inform the organization whether or not the EMS conforms to the ISO 14001 standard.

The seventh quarterly meeting will consist of discussion of the entire process and suggestions to improve the process. Any un-answered questions or concerns will be addressed at this time, and hopefully all participants will have developed and implemented an ISO 14001 compatible EMS.

Conclusion

The project is fifty percent completed, and all is progressing smoothly. It is anticipated that all participants will have an ISO 14001 compatible EMS by the end of the project. The goal of this project, in addition to an EMS, is for the current participants to encourage other electroplaters to take part in future EMS projects and to mentor these future participants in developing their own EMS.



The U.S. EPA's Metal Finishing Facility Pollution Prevention Tool (MFFP2T)

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The United States Environmental Protection Agency has developed a pre-release version of a process simulation tool, the Metal Finishing Facility Pollution Prevention Tool (MFFP2T), for the metal finishing industry. This presentation will provide a demonstration of the current version of this tool. The presentation will also provide a brief overview of additional components that can be added to the tool in order to aid metal finishing facilities in evaluating pollution prevention options, identifying and managing the facility's supply chain, aid the facility in documenting regulatory compliance, and support creation of an environmental management system.

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