American Ordinance

CASE SUMMARY 2

AMERICAN ORDINANCE LLC

Middletown, Iowa
Des Moines County

Intern: Christina Walerak
Major: Chemical Engineering
School: University of Iowa

The Company

American Ordnance is a limited liability company, which has a facility use contract with the U.S. Army to operate the Iowa Army Ammunition Plant (IAAP). The main purpose of this facility is to load, assemble and pack ammunition. American Ordnance can also perform renovation, maintenance, and demilitarization of most items produced.

Project Background

American Ordnance (AO) has in place an effective environmental program plan for the IAAAP and is working to develop an ISO 14001 — Environmental Management System (EMS). The existing environmental plan is also used by AO as a Hazardous Materials Management Plan (HMMP) which has many of the same elements as an EMS. The main concentration of this project was to evaluate gaps between the existing documents and specific HMMP/EMS requirements. The intern was to create draft best management practices (BMP) to be used throughout the installation that would identify and fill those gaps to provide a basis for continual improvement.

Incentives to Change

By incorporating the principles of a HMMP/EMS into the current environmental program, hazardous material tracking can be significantly improved. Through better tracking, hazardous materials and wastes can be minimized and/or controlled to reduce the costs and environmental impacts associated with ultimate disposal. Additionally, the development of an EMS requires the use of life cycle analysis (LCA). By developing basic guidelines for an LCA the installation can identify and manage gaps while incorporating environmental practices into many areas of the plant. These practices will provide a proactive approach to environmental management and potentially create cost savings in production.

In addition, there are other areas where the amount of landfill, contaminated and hazardous waste that are both generated and disposed of could be reduced. Through the identification and implementation of specific practices, AO could reduce waste management expenses by means of alternate disposal methods.

Results

BMPs for general life cycle analysis (LCA) review and a Hazardous Material Management Plan (HMMP) have been drafted. These practices will help fill gaps in the existing program and provide needed groundwork to continue working toward an EMS.

The BMP for a generalized LCA review has been drafted after meetings with persons in several

departments including purchasing, engineering, disposal and quality. These meetings assisted in identifying current installation practices as well as in gaining a general view of how the LCA review can be beneficial to the correct people and be made easiest to use.

The current hazardous materials management procedures have been reviewed and the parts missing from complete HMMP/EMS documents have been identified. The benefits of a HMMP have also been identified and a draft for a HMMP best management practice has been formed. This draft HMMP has several missing elements needed for HMMP/EMS requirements, however, with future additions is expected to significantly improve hazardous material management.

During the review process for HMMP, several opportunities for waste minimization were discovered. One project focused on reducing the quantity of hazardous contaminated wipes and rags produced on site. Through more efficient procedures and operator training the amount of waste can be significantly reduced. An additional way to reduce the amount of hazardous waste is to eliminate the source of contamination. A solvent substitute for acetone was identified.

An alternative disposal method for sump scrap through further reduction of the water content was identified. Water removed from the scrap is sent to the existing recirculation system, therefore reducing the water waste and total volume of scrap generated. Potential savings are approximately $120,000 annually.

Fly ash generated at the IAAP is currently being placed in an on-site landfill, which is projected to be filled by the year 2008. If a consumer is found, AO could potentially eliminate the necessity of building a new landfill. Several companies have been contacted and test samples provided. This project is in progress.