Supplement to the Environmental, Health, and Safety Auditing Handbook

LEE HARRISON

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Lee Harrison, Editor

President
Harrision Associates
Williamstown, Mass.

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Preface

As we approach the millennium, it is safe to say that environmental, health, and safety auditing has become standard operating procedure at most major corporations in North America and Europe. In fact, a growing number of companies with sophisticated, long-standing audit programs now view them, and their entire environmental management systems, as more than simply a means of providing insurance against calamitous events. They employ their environmental systems as tools for improving overall corporate performance in numerous areas.

Although environmental auditing began in the West and has been refined at the major industrial and consumer products manufacturing companies there, it is no longer seen as strictly the purview of companies in North America and Europe. Increasingly, these procedures are becoming accepted by companies and countries around the world, especially in Asia and Latin Amercia. The development of the ISO 14000 series of voluntary environmental standards, no doubt, is helping to drive this process. Indeed, companies seeking to do business worldwide should not be surprised to find ISO 14001 certification required even in countries where no elaborate environmental regulatory structure exists.

As one might expect—and as this supplement demonstrates—techniques employed by environmental auditors have become increasingly sophisticated over the last 15 years. Techniques have been developed or adapted to deal with both centralized and decentralized management structures, reengineered to evaluate entire environmental management systems, and expanded to measure sustainability in business to the

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extent of including an evaluation of the software used in EHS programs. Still, as with other areas of business, there is a need for continuous improvement, and it is with that thought in mind that we are publishing this supplement to the 1994 *Environmental, Health, and Safety Handbook.*

Lee Harrison

Contributors

Edward A. Blackford, AES Beaver Valley, Inc., Monaca, Pennsylvania (CHAP. 3)

Paul Burger, AES Placerita, Inc., Newhall, California (CHAP. 3)

Keith E. Kennedy, WMX Technologies, Inc., Oak Brook, Illinois (CHAP. 1)

Norman P. Moreau, Management Analysis Company, Washington, D.C. (CHAP. 6)

John S. Nagy, WMX Technologies, Inc., Oak Brook, Illinois (CHAP. 1)

Robert G. Newport, WMX Technologies, Inc., Oak Brook, Illinois (CHAP. 1)

Jane E. Obbagy, Vice President, Arthur D. Little, Inc., Cambridge, Massachusetts (CHAP. 5)

James L. Smith, Senior Environmental Management Systems Consultant (CHAP. 2)

David Wheeler, General Manager, Ethical Audit, The Body Shop International, Littlehampton, U.K. (CHAP. 4)

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1

Environmental Audit Process Reengineering

From Compliance Verification to Management System Evaluation

John S. Nagy
Robert G. Newport
Keith E. Kennedy
WMX Technologies, Inc.
Oak Brook, Ill.

Introduction

Purpose

This chapter discusses the changes that occur to a corporate environmental audit program over time, changes that seek continuous improvement in the quality and efficiency of the program and that seek to ensure that the program is suited to the coverage, sophistication, and effectiveness of the environmental management programs and systems being implemented for the operations being audited. The chapter also will address concepts related to the evolution of audit programs and provide a detailed discussion of a case study—the continuing development of the environmental audit program being implemented by WMX Technologies, Inc.

Evolution of Corporate Environmental Audit Programs

Traditionally, environmental auditing within WMX and many other organizations has been directed toward detailed compliance verification—checking compliance with specific requirements. Over time, the WMX Environmental Audit Program has evolved from detailed compliance verification toward a management systems auditing approach. This evolution occurred in concert with the development of strong compliance management programs and systems within the company.

Figure 1-1 is a graphical representation of how corporate environmental audit programs must develop at the same rate that improvements are enacted to an organization's environmental compliance management programs and systems. In the early stages of development, the facilities audited have relatively less developed compliance programs, which could lead to conditions such as:

- Operating personnel are not aware of all requirements.
- Process and procedures to ensure compliance are not fully defined; compliance is not systematic, predictable, or reliable.

At this evolutionary stage, it is important for auditors to have complete lists of requirements and to check each requirement to make sure any instances of noncompliance are identified and corrected. It would not be uncommon during this stage for audit reports to include long lists of items that need to be addressed. In some cases the corrective actions that are implemented are short-term fixes, which may address the symptoms of a problem more so than the root cause of the problem.

As the sophistication and effectiveness of the compliance systems being implemented within an organization increase, the need for detailed compliance verification tends to decrease. For example, if a facility is aware of all requirements, has systems in place to prompt compliance-related activ-

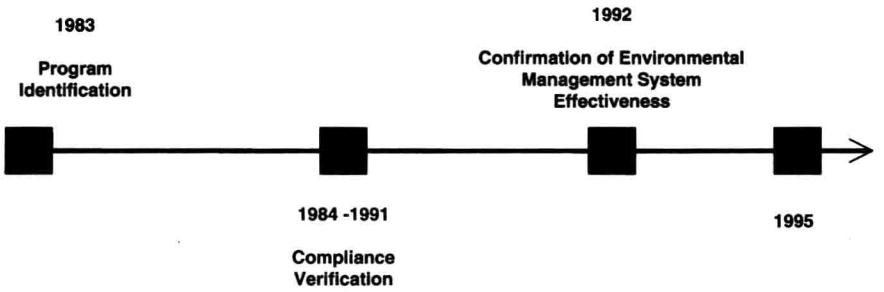

Figure 1-1. Environmental Audit Program evolution.

ities (e.g., a compliance calendar), does compliance self-checking, and has an effective training program, it is less likely that auditors can add value by reviewing specific requirements for which the facility has effective systems. Instead, the auditors can review the management systems, to make sure they are strong and complete, and focus detailed verification primarily in areas where the systems are relatively weaker or nonexistent. This leads to efficiencies in the audit process, and helps facilities to continually improve their processes and systems, based on the reviews conducted by the auditors.

Overview

This chapter describes the growth of the WMX Environmental Audit Program over time, showing strong correlation to the general model for the evolution of corporate audit programs. The reengineering of the WMX program involved a systematic process analysis initiative, followed by process redesign, testing, and implementation; each step is summarized. The chapter concludes with an assessment of the effects of the reengineering of the program and a forecast of the future direction the program will be taking.

A Case Study: The WMX Environmental Audit Program

Background

The WMX Environmental Audit Program is operated centrally from the corporate office, and covers several hundred operating locations. The objectives of the WMX Audit Program are to:

- Provide assurance to management that systems and controls are in place and being implemented at company facilities and operations to ensure continuing compliance.
- Assist facility managers in the identification of specific environmental compliance issues, and ensure that the issues which are identified are fully addressed and resolved.
- Evaluate compliance trends across the company's business groups.
- Work with the business groups to assess the need to strengthen company environmental policies and/or management systems.

Requirements reviewed during audits include federal and state statutes and regulations that address solid and hazardous waste man-

agement, air and water pollution control, and health, safety, and transportation requirements. The scope of the audit includes requirements established in permits, administrative rulings, contractual requirements, local ordinances, and company policies. Depending on the operations being audited, up to 25 subject areas are covered in audits, including such areas as construction, operations, air monitoring and emissions, generator standards, and surface water discharge management.

WMX environmental audits are conducted by audit teams of two to five auditors responsible for all preparation, on-site evaluation, and reporting activities. Time requirements for specific audits vary depending upon the type of operation being audited, the complexity of the regularity framework, and the size and composition of the team; most audits require 3–7 days per auditor for preparation activities, 3–5 days of work on site, and 2–5 days per auditor for reporting and "postaudit" work.

Program History

Prior to 1983, the company did not have an environmental audit program. In general, environmental management programs were in the early stages of development (i.e., staffing was minimal, the environmental management mission was narrowly defined, and formal compliance programs had not been universally implemented). Although company management stressed the importance of compliance, the means for achieving and consistently maintaining compliance had not been established; in addition, there were no consistent, objective compliance assessment mechanisms in the company. The prevailing assumption was that environmental compliance did not have to be managed any differently than other business elements.

WMX established an environmental audit program in 1983 in response to the identification of compliance management concerns within the company (see Fig. 1-2 for a graphical presentation of this stage and later developmental stages of the WMX Audit Program). Similar to the model for the evolution of compliance and auditing programs (Fig. 1-1), audits frequently found that compliance performance was not at the expected levels. The company recognized the need to strengthen the internal compliance focus and provide assistance to facility managers in their compliance assurance efforts. The environmental audit program that was established resulted in an improved compliance record, heightened compliance awareness throughout the company, management assurance that compliance was being (or would be) achieved, and effective measurement of the compliance status of individual facilities.

The audit process was oriented toward verification of compliance with all applicable environmental requirements. Audits focused on the

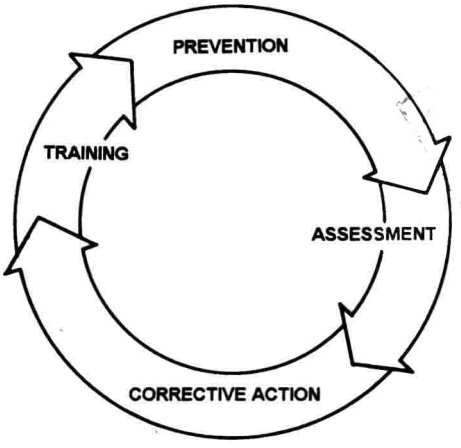

Figure 1-2. PACT cycle of continuous improvement.

present and the past, not on the future. Inspection activities were essentially a "snapshot" in time answering the question, "What was the condition of the facility on the days of the audit?" Document reviews tended to focus on the past, addressing issues such as, "Was the required report submitted?" and "Was the required monitoring conducted?" There was no coverage of health, safety, or transportation requirements. The emphasis was on the identification of compliance issues and tracking those issues through resolution. Root-cause analysis and management-system evaluations were not part of the process.

From the inception of the program until 1992, the basic element of the audit process remained unchanged (the program scope, however, was broadened periodically commensurate with regulatory changes and company growth). The process was heavily oriented toward compliance verification, which was consistent with the proficiency level of compliance management programs at the facility level. Although the mission and scope of audits remained relatively unchanged, quality assurance mechanisms were formally introduced into the audit process in 1988 after a self-evaluation identified the need to strengthen quality controls in several areas.

Another detailed self-evaluation of the audit process conducted in 1991 identified the need to advance the program from compliance verification auditing to a combination of management system evaluation and compliance verification. This advancement was related directly to the maturity and increased effectiveness of the company's compliance management programs. In addition, a mechanism for facilities to self-

check compliance was introduced. Although audit reporting remained focused on specific facility-level compliance issues, audit teams began evaluating the compliance-related management systems employed at the operational level. Select health and safety requirements (principally right-to-know and emergency management) were also added to the scope of audits.

The third major audit process change, initiated in 1993, was developed through a structured process improvement initiative and implemented in early 1995. Process changes were prompted by the internal identification of improvement opportunities, with the goals of:

- Enhancing the quality and efficiency of the audit process, consistent with the total quality management principle of continuous improvement;
- Maintaining a leading-edge environmental audit program; and
- Recognizing the increasing effectiveness of environmental management systems and activities at company facilities (including a rigorous self-assessment program).

Audit process changes were targeted at achieving the following objectives:

- Reduction of the cost and cycle time of audits;
- Increased customer satisfaction; and
- Maximum use of audit resources in an expanding business environment.

The Process Improvement Initiative

WMX convened a process improvement team in late 1993 to evaluate audit program customer needs and environmental audit processes. The company's "continuous improvement roadmap" was implemented to ensure that the established objectives would be met. This roadmap is not unlike other total quality management and reengineering efforts; in fact, the most unique aspect of the roadmap was not the steps that were included but rather the top management support and tremendous enthusiasm for improving key business processes that accompanied this approach to process improvement. This support meant that unlike the process changes that occurred in 1988 and 1992, the Audit Department would be able to tap into additional resources and support for improving the audit process. The process improvement team interviewed process owners, auditors, and process customers, benchmarked with

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