Environmental Auditing and Improvement

11 December 2004

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Introduction to Auditing

AUDIT CHARACTERISTICS

- **Systematic**
- **Documented**
- **Objective**
- **Periodic**

TYPES OF ENVIRONMENTAL AUDIT

Follow the same principles & techniques but with a different focus

- Pre-acquisition
- Compliance
- Single Issue
- Supplier
- Insurance
- EMS Audit (Self audit or Third Party Certification Audit)

ISO 19011
Guidelines for Auditing

◆ **Audit Procedures - Auditing of Environmental Management Systems and Quality Management System**

Purpose: *Establishes procedures for planning and performing a QMS and EMS Audit - to determine conformance with the QMS and EMS audit criteria.*

Responsibilities
- –Auditor, Audit Team
- –Client, Auditee

Auditing
- –Scope, Document Review
- –Preparation, Execution
- –Reporting

EMS Audit Procedures

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EMS Audit - *BASIC STEPS*

Pre Audit Preparation

- Select Team
- Familiarise
- Planning

Conducting the Audit

- Opening Meeting
- Document Review
- Interviews
- Site Observation
- Assess & Verify
- Closing Meeting

Post Audit

- Draft Report
- Phase II
- Final Report

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DEFINE THE SCOPE & OBJECTIVES

Scope: defines the elements to be included

specific parts of a site

specific products

specific parts of a company

specific elements of an EMS

According to the EMS Audit Programme

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PREPARATION OF AN EMS AUDIT SCHEDULE

- Frequency based on the nature and importance of the operation in terms of environmental aspects and potential impacts

- Previous audit results

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PREPARATION OF AN EMS AUDIT PROGRAMME

- **Location - oriented**
  - audit actions resulting from EACH element of the EMS at ONE particular location

- **Function - oriented**
  - audit activities related to ONE particular element of the EMS at ALL locations

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PREPARATION OF CHECKLIST

- Consistent with the purpose, objectives and scope of the audit

- Based on the auditing criteria (e.g. ISO 14001 Requirements, Procedures, WIs, Legislation, etc.)

- Adequate coverage and depth

- No universal style and format

- Previous audit results

- Generic vs Specific

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AN EXAMPLE OF CHECKLIST

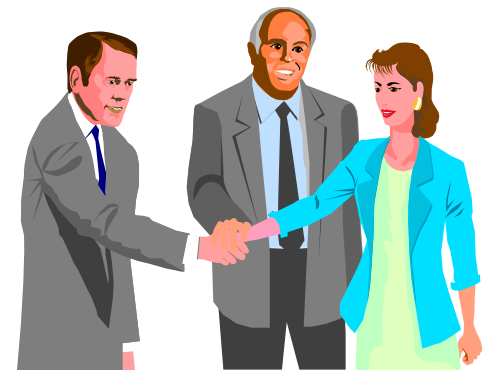| Audit Areas	Topics	Document Reviewed	Compliance Satus	Obs
Objectives/ Targets/ Management Programmes	• Check progress against management programmes • Check that department heads understand objectives and targets • Check that the progress is being adequately reviewed • Check that assigned tasks are being completed • Interview managers to check that they are aware of and understand their responsibilities in the EMPs • Check that all new criterias are adequately addressed by operation controls or O&T • Check that new objectives and targets have been set when old ones have been completed			

AUDIT PLAN

A clear plan is needed for the audit which defines:

- ◆ date & locations
- ◆ audit objectives and scope
- ◆ audit methodology, procedure
- ◆ interview requirements
- ◆ identification of high priority areas
- ◆ identification of audit team members
- ◆ identification of reference documents
- ◆ time and duration of major activities
- ◆ schedule of meetings
- ◆ confidentiality requirements
- ◆ report format/structure
- ◆ document retention requirements
- ◆ audit language

OPENING MEETING

- Introduce members of audit team to auditee's management

- Review scope, objectives, audit plan

- Provide summary of methods and procedures
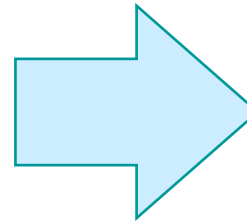
- Confirm availability of resources

Use of Audit Checklist

- Based on company's EMS Documentation

- Provides guidance and document reference

- Always refer to the relevant EMS documentation for the detailed requirements

- Requires understanding of ISO 14001 principles

- Follow audit trail

- Check documents/records - Readiness & Appropriateness

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DOCUMENT REVIEW

You may need to review a sample of available evidence. For example:

- field log sheet / site operation data

- monitoring measuring results

- communication records

- complaints log

- non-conformance reports

- inspection records

- drill records

Sampling Method

INTERVIEW

Why?

- ◆ Accumulate data

- ◆ Stimulate interviewees interest

- ◆ Get individual participation

- ◆ Determine interviewees knowledge and understanding ➡ *Training, Awareness and Competence*

- ◆ Facilitate conclusions

SITE OBSERVATION

- May include:

materials handling

storage

waste handling

odours

environmental noise

wastage

housekeeping

evidence of contamination

lack of vegetation

drains and gullies

tanks and bunds

labels and signs

Depending on the audit scope, objectives, programme/plan

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WORKING PAPERS

- Visual observations
- Names of interviewees
- Information gathered through interviews
- Documents reviewed
- Summary of contents of documents reviewed
- Description and results of tests/sampling performed to evaluate site conformance with environmental standards

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DEVELOP AUDIT FINDINGS

☞ **Audit findings need to be developed in the context of the audit criteria**

- – **ISO 14001 Standard**
- – **Corporate/Site EMS Manual**
- – **Procedures and Work Instructions**
- – **Legislative Requirements**

How??

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THE CLOSING MEETING

At the end of the audit, the close out meeting will provide a forum to:

◆ present findings & observations

◆ discuss any contentious issues

◆ resolve disagreements (final decisions fall on the lead auditor)

◆ confirm format of the final report

◆ discuss any recommendations

◆ agree a timetable for issue of any supplementary information

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Reporting

At a minimum the report should contain:

- identification of the organization/area audited

- reference to auditees representatives

- audit team, date

- agreed objectives, scope

- agreed criteria against which the audit is to be conducted

- summary of audit process, any problems encountered

- audit findings audit conclusions

  - ◆ Conformance to audit criteria

  - ◆ system properly maintained and implemented

  - ◆ input into internal management review process

INTERNAL
EMS
AUDIT

COMMON PITFALLS

Poor

☞ **Spill containment provisions on the loading dock may lead to a dangerous situation**

Improved

☞ **The loading dock does not have spill containment measures to prevent, spills from potentially reaching the stormsewer, during loading/unloading operations**

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Importance of Innovative Thinking

Attribute Listing

◆ breakdown a problem to its most basic attributes - list of ideas can be developed to address improvement of each elements

◆ by reducing the problems into a collection of interrelated, smaller and more manageable elements, it is possible to improve the whole by simply changing one or more of the attributes

◆ e.g. a retailer wants to reduce plastic bag consumption

Feature	Attribute	Ideas
Material	Plastics	Recycled plastics or paper
Thickness	2 mm	less than 2 mm
Size	Standard	Different sizes
Distribution	Every customer	Ask customers if they require a bag
Cost	Fee to customers	Charge customer per bag
Return	Nil	Purchase discount for returned bags

Escape Thinking

◆ useful for organisations looking to redesign work process

◆ identify patterns and impose categories on things and situations based on pre-conceived ideas, thereby limiting lateral thinking

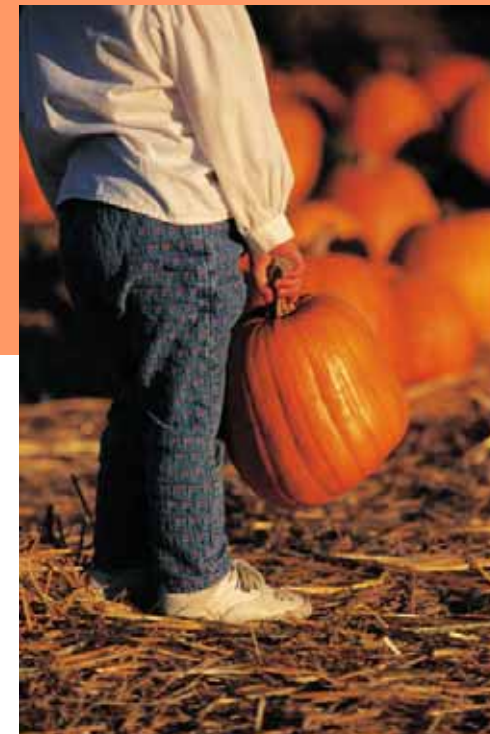◆ e.g. create a new sales concept for a record store

One assumption on the list might be: record shops sell rods.

Using Escape Thinking technique, the assumption statement is turned into a provocation statement such as: record shops do NOT sell records.

This is the straight point for looking at a record shop in a new way.

It might lead on an idea like displaying/suggesting different song recordings which can be purchased and downloaded onto customer' personal computer so personal data assistants.
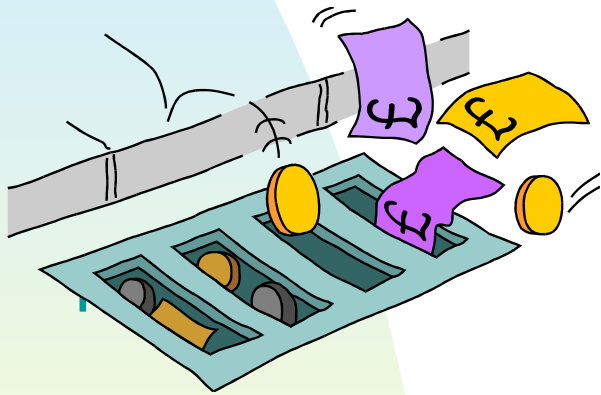
Benefits and Opportunities

Examples of Potential Benefits & Opportunities

Scope for Housekeeping Savings:

Electricity   5 – 20%

Solid waste   10 – 50%

Consumables   10 - 30%

Reduced insurance

A photocopier left on all night uses enough electricity to produce over 5,000 A4 copies

Example from Metro City Management Limited

- problem: to clean artifical fountains, channels, aqueducts and pools - discharge all the water and replaced with fresh water

- solution: develped a Mobile Aqueous Cleaner (MAC) (consist of a water pump, a sand filtration tank, a control panel, a suction paper and scapers mounted on wheels) to filter the water

Environmental Attribute	Without MAC	With MAC
Material Efficiency	Contained water is pumped out and disposed of. Fresh water is cleaned and pumped in	Contained water remains throughout the cleaning process
Energy Efficiency	Energy is used to pump in /out water. Fresh water is filtered	Energy is used ot pump water throughout the filter
Function and Service Extension	Water is not recycled	Water is recycled
Environmentally Sensitive Resource Conservation	More fresh water supply via water treatment works	Less fresh water supply via water treatment works
Environmental Pollution Cost	Minimal	Minimal
Environmental Risk and Liability	Minimal	Minimal

Thank you

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