LIABILITY AUDITS AND SITE ASSESSMENT

With the advent of stringent legislation on liabilities for contaminated soil and groundwater, there has been a growing demand for information on the environmental state of properties and the potential for on- and off-site pollution migration.

In the United States, for example, 100,000 sites have been labeled as contaminated, of which 10,000 have been described as priority cases, and these properties are called *brownfields.* The US Environmental Protection Agency (EPA) defines brownfields as abandoned, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination. Contaminated land is also fairly common in Central and Eastern Europe and in industrialised regions in many developing countries like India.

Many of these sites offer attractive financial opportunities, but a major obstacle to their redevelopment is the fear of contamination (left by past users) and associated liabilities. Major liabilities include potential remediation/cleanup; regulatory compliance; fines and penalties for regulatory non-compliance and compensation to private parties. Under the US Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), often referred to as Superfund, the current owner of a contaminated site may be held liable for the cost of clean up. In India, the responsibility of the occupier and operator of a facility handling hazardous wastes is also defined under hazardous waste (Management & Handling Amendment Rules, 2000).

Often, the costs of investigations and remediation measures exceed the value of the property. Investigations to identify actual

or potential site contamination are called site due diligence or liability audits. At times they are referred to as environmental site assessments (ESA).

Liability audit: Phase 1

The term *Phase 1 liability audit* is used for investigations that involve collecting information from interviews, by studying available historical information and by performing visual inspections of sites. It is also known as *pre-acquisition site assessment*, *preliminary site assessment*, *liability audit* and *environmental due diligence*. In general, Phase 1 audit is carried out based on the country specific guidelines or standards, as illustrated below:

- American Society for Testing and Materials (ASTM) Standard E 1527-97 entitled *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*.
- ASTM Standard E1528-96 entitled *Environmental Site Assessments: Transaction Screen Process*.
- The Interdepartmental Committee (of the UK Department of Environment) on the Redevelopment of Contaminated Land (ICRCL) guidance note 59/83 (2nd Edition, July 1987).

In practice, it is indeed often necessary to take a phased approach, with a Phase 2 audit following a Phase 1 audit. Phase 1 audits, which are relatively inexpensive and quick, can help screen out those sites that do not require further investigation, thereby reducing the uncertainty of potential environmental liabilities.

The audits should also identify the needs for, and possibly the scope of, more thorough investigations in the form of a Phase 2 audit. The findings in the Phase 1 audit should state as to whether or not contamination is suspected as well as the likelihood of contamination. This approach can limit the need for drilling, sampling and analysis, and thereby reducing costs. A Phase 1 audit should also place the site-specific findings into the context of the surrounding environment.

Liability audit: Phase 2

Phase 2 liability audit refers to investigations that involve detailed physical sampling and testing of contaminants in laboratories.

The outcome of the Phase 1 audit forms the basis of the exploratory subsurface investigation (Phase 2). This involves drilling, sampling and analysis of primarily soil and groundwater and assessment of respective contamination against clean up standard (e.g., The Dutch Ministry of Public Housing, Land Use and Environmental Guidelines Soil and Groundwater Standards). This also involves collection of geological and hydro-geological data of the site to establish lateral and vertical extension of the contaminants, if any. Note that in the absence of any soil and groundwater standards, this or other country-specific standards can be adopted in India for assessment purpose.

Phase 2 audit helps determine the need for additional investigations or remediation. If contamination is identified through this process, the question of remediation and clean up is dictated by a number of factors such as legislation, future land use, risks of contaminant spreading and possible impacts on human health and the environment. If necessary, a remediation plan is developed as part of, or as follow-up to, the Phase 2 audit.

The remediation activities are sometimes termed as Phase 3 of the process. It is important to strike a balance between the time and costs of investigations and the need for additional information to reduce uncertainties about possible contamination. The uncertainties inherent in site investigations make it crucial to document observations, findings and how conclusions have been formed. It is also important to use the information obtained in one part of an audit (e.g., the site inspection) to confirm or invalidate observations from other parts (e.g., record reviews or interview sessions).

Typically, the scope of liability audit includes the following:

- Initial briefing sessions at the company's facilities between the consultant and appropriate company staff.
- Review of relevant environmental and occupational health and safety legislation.
- Review of existing documentation pertinent to all of the facilities and the environmental and occupational health and safety aspects of the facilities.
- Inspection of all buildings and properties in which significant manufacturing, laboratory, or chemical storage/disposal operations are to be included in the audit.
- Identification of all environmental and occupational health and safety concerns related to both past and ongoing activities.
- Preparation of a prioritised list (i.e., high, medium and low) of concerns related to past and ongoing activities.
- Providing recommendations and estimated costs on what additional remediation measures required for both past and ongoing environmental concerns.

- Preparation of a report that identifies all relevant environmental and occupational health and safety legislations/concerns; prioritisation of all concerns related to past activities as also ongoing activities; recommendations on what further action is required along with a cost estimate for such actions for both past and ongoing activities and an executive summary highlighting the key findings.

AUDITING OF EMS

An environmental management system (EMS) audit refers to a systematic and documented verification process of objectively obtaining audit evidence to determine whether an organisation's EMS conforms to the audit criteria and communicating the results of this process to the client

The EMS audit criteria include policies, practices, procedures or requirements, such as those covered by ISO 14001 and, if applicable, any additional EMS requirements against which the auditor compares collected audit evidence about the organisation's environmental management system.

Audit objectives, roles and responsibilities

The objectives of a typical EMS audit include:

- determining conformance of an auditee's EMS with the EMS audit criteria;
- determining whether the auditee's EMS has been properly implemented and maintained;

- identifying areas of potential improvement in the auditee's EMS;
- assessing the ability of the internal management review process to ensure the continuing suitability and effectiveness of the EMS;
- evaluating the EMS of an organisation where there is a desire to establish a contractual relationship (e.g., with a potential supplier or a joint-venture partner).

Auditors and clients have an important role to play in auditing environmental management systems.

Scoping and review

The scope of the audit describes the extent and boundaries of the audit in terms of factors such as physical location and organisational activities as well as the manner of reporting. The client and the lead auditor determine the scope of the audit. The auditee should normally be consulted when determining the scope of the audit. Any subsequent changes to the audit scope require the agreement of the client and the lead auditor. The resources committed to the audit should be sufficient to meet its intended scope.

At the beginning of the audit process, the lead auditor should review the organisation's documentation such as environmental policy statements, programmes, records or manuals for meeting its EMS requirements. In doing so, appropriate background information on the auditee's organisation must be used. If the documentation is judged to be inadequate to conduct the audit, the client should be informed. Additional resources should not be expended until further instructions have been received from the client.

Preparing the audit

The audit plan should be designed to be flexible in order to permit changes in emphasis based on information gathered during the audit and to permit effective use of resources. The plan should include most of the following elements:

- the audit objectives and scope;
- the audit criteria;
- identification of the auditee's organisational and functional units to be audited;
- identification of the functions and/or individuals within the auditee's organisation having significant direct responsibilities regarding the auditee's EMS;
- identification of those elements of the auditee's EMS that are of high audit priority;

- the procedures for auditing the auditee's EMS elements as appropriate for the auditee's organisation;
- the working and reporting languages of the audit;
- identification of reference documents;
- the expected time and duration for major audit activities;
- the dates and places where the audit is to be conducted;
- identification of audit team members;
- the schedule of meetings to be held with the auditee's management;
- confidentiality requirements;
- report content and format, expected date of issue and distribution of the audit report;
- document retention requirements.

The audit plan should be communicated to the client, the audit-team members and the auditee. The client should review and approve the plan. If the auditee objects to any provisions in the audit plan, such objections should be made known to the lead auditor and resolved between the lead auditor, the auditee and the client before conducting the audit. Any revised audit plan should be agreed between the parties concerned before or during the audit.

Conducting the audit

Audits are conducted with an opening meeting to:

- introduce the members of the audit team to the auditee's management;
- review the scope, objectives and audit plan and agree on the audit timetable;
- provide a short summary of the methods and procedures to be used to conduct the audit;
- establish the official communication links between the audit team and the auditee;
- confirm that the resources and facilities needed by the audit team are available;
- confirm the time and date of the closing meeting;
- promote the active participation by the auditee;
- review relevant site safety and emergency procedures for the audit team.

Sufficient audit evidence should be collected to be able to determine whether the auditee's EMS conforms to the EMS audit criteria. Audit evidence should be collected through interviews, examination of documents and observation of activities and conditions. Indications of non-conformity to the EMS audit criteria should be recorded. Information gathered through interviews should be verified by acquiring supporting information from independent sources, such as observations, records and results of existing measurements. Non-verifiable statements should be identified as such. The audit team should examine the basis of

relevant sampling programmes and the procedures for ensuring effective quality control of sampling and measurement processes, used by the auditee as part of its EMS activities.

After completion of the audit evidence collection phase and prior to preparing an audit report, the audit team should hold a meeting with the auditee's management and those responsible for the functions audited. The main purpose of this meeting is to present audit findings to the auditee in such a manner as to obtain their clear understanding and acknowledgement of the factual basis of the audit findings. Disagreements should be resolved, if possible before the lead auditor issues the report. Final decisions on the significance and description of the audit findings ultimately rest with the lead auditor, though the auditee or client may still disagree with these findings.

Content of audit report

The audit report should be dated and signed by the lead auditor. It should contain the audit findings and/or a summary thereof with reference to supporting evidence. Subject to agreement between the lead auditor and the client, the audit report may also include the following:

- the identification of the organisation audited and of the client;
- the agreed objectives, scope and plan of the audit;
- the agreed criteria, including a list of reference documents against which the audit was conducted;
- the period covered by the audit and the date(s) the audit was conducted;
- the identification of the auditee's representatives participating in the audit;
- the identification of the audit-team members;

- a statement of the confidential nature of the contents;
- the distribution list for the audit report;
- a summary of the audit process including any obstacles encountered;
- audit conclusions such as EMS conformance to the EMS audit criteria, whether the system is properly implemented and maintained and whether the internal management review process is able to ensure the continuing suitability and effectiveness of the EMS.

The audit is completed once all the activities defined in the audit plan have been concluded.

SUMMARY

The focus of this Unit was on the emergence of environmental audit as a proactive environmental management tool. We began the Unit by giving you an overview of the objectives and scope of an environmental audit. We then discussed the methodologies of and procedures involved in carrying out an audit programme. We also discussed the various applications of environmental audit and their scope and in that context explained waste, liability, industrial and EMS audits.

SUGGESTED READING

British Standards Institute BS 7750:1994 *Specification for Environmental Management Systems*.

Edward, J. R., (undated) Taking Environmental Audit to the next level: Moving to Pollution Prevention Audits in the 1990s U.S.EPA.

Environmental Auditing

Lecture three