CORPORATE ENVIRONMENTAL AND SAFETY AUDITING PROGRAM IMPLEMENTED BY BRAZILIAN OIL INDUSTRY

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ABSTRACT

This paper describes the Corporate Environmental and Industrial Safety Auditing Program implemented, since 1996, by Petrobras - the Brazilian state-owned oil company. Petrobras is an integrated oil company operating in the upstream and downstream of the oil business. It has 5 subsidiaries: one for transportation, one for distribution; one for international activities; one for petrochemical products and one for gas and fertilizers. Petrobras oil production is around 1,050,000 barrels/day and its installed refining capacity is 1,770,635 barrels/day. The Company has a written Environmental and Industrial Safety Policy, composed of 10 principles and guidelines, issued in January 1996. Environmental and Industrial Safety Auditing is a management tool, used by many industrial organizations to evaluate the performance of these functions against policies, international and national standards, laws, regulations and good management practices. The audit methodology includes preparation, on-site review, reporting and follow-up of the action plans prepared by the audited organization. The checklist of our Corporate Environmental and Industrial Safety Auditing Program is in line with the international environmental management systems (EMS) standard ISO 14001 and the British standard BS 8800 on occupational health and safety management systems. The main elements of the auditing program, including the pre-audit activities, the audit methodology, the initial results, the action plans developed and the conclusions of the paper, are presented.

INTRODUCTION

Petróleo Brasileiro S.A - Petrobras, is a mixed capital company, controlled by the Federal Government and linked to the Ministry of Mines and Energy. Petrobras does business in the upstream (exploration, drilling and production) and in the downstream (transportation, refining and marketing) of the oil business. It has 5 subsidiaries operating in the areas of transportation, gas and fertilizers, distribution, chemistry and also in the international area. According to the criteria of the Petroleum Intelligence Weekly Magazine Petrobras ranks among the 16 largest oil companies in the world, and uses state-of-the-art technology for oil production in deep waters.

Petrobras has a Corporate Environmental and Industrial Safety Policy (Ref 5), which is the basis of the audit program. This policy was issued in January 1996 and comprises a set of 10 principles and guidelines focusing on the anticipation and prevision, information to users and consumers, compliance with legislation, implementation of appropriate management systems guided by the corporate sustainable development principles.

The objective of this work is to present Petrobras Corporate Environmental and Industrial Safety Audit Program and its main results and conclusions.

Program guidelines, the Environmental and Industrial Safety (ES) auditing process systematic, including pre-audit, audit, post-audit activities and presentation of results, instructions for preparation of the pre-audit report, registry of corporate ES auditors and corporate program checklist are presented.

This article is also based on the contents of the MSc.Thesis written by the author and named "Environmental Auditing in the Oil Industry" (Ref 1).

PETROBRAS CORPORATE ENVIRONMENTAL AND INDUSTRIAL SAFETY PROGRAM

Premises and Definitions

To standardize concepts and terms appropriate to the improvement of Petrobras Environmental and Industrial Safety (ES) Functions Management Systems, the following premises and definitions were adopted:

Premises:

- The Company has a single Corporate Policy for the Environmental and Industrial Safety Functions, covering all related activities, services and products.
- Business Segments, Services, Special Units and Operating Units have a Policy and/or Guidelines for the Environmental and Industrial Safety Functions, within the scope of their specific activities, services and products.
- Business Segments, Services, Special Units and Operating Units must breakdown their Policy and/or Guidelines into Objectives, Targets and Programs for the Environmental and Industrial Safety Functions regarding their respective activities, services and products.

Definitions

- Environment and Industrial Safety are called ES;
- Business Segment - Unit established at Corporate headquarters, responsible for Petrobras target activity, to which are linked the Operating Units. Within this concept Services, the Research Center and Special Units are included.
- Operating Unit: Any Company Operating Unit, such as refineries, oil terminal and E&P region.

Environmental and Industrial Safety (ES) Functions Management Systems:

The model to be verified in the ES Corporate Audit comprises the following elements, which are referred to BS 8800 (Ref. 2), ISO 14001 (Ref.3), ISO 14004 (Ref. 4):

- Leadership and Commitment
- Policy and/or Guidelines
- Planning
- Assessment and Corrective Action
- Management Review

Guidelines of the Corporate Environmental and Industrial Safety Audit Program

Petrobras Corporate Environmental and Industrial Safety Audit Program, is a management tool aimed at the methodical, documented, periodic and objective assessment of Company performance, regarding the implementation of these functions in its various business segments, targeting the continuous improvement of procedures, attitudes and results, and is governed by the following basic guidelines:

- It is an Internal Program and the Environmental and Industrial Safety Functions are audited jointly;

- A Corporate Environmental and Industrial Safety Audit Commission, formed by the Superintendents of the different company units exercises the coordination of the program. The Environment, Quality and Industrial Safety Superintendence - Susema is responsible for the Program Executive Secretary;

- Every two years a Corporate Audit is conducted at each Business Segment, Service or Special Unit, to assess the performance in the Environmental and Industrial Safety Functions;

- The Corporate Environmental and Safety Audit Program has to be implemented by Company Team of Auditors;

- The Company Business, Services and Special Units segments have Environmental and Industrial Safety Audit Programs to supplement the Corporate Environmental and Safety Audit Program for these functions;

- The Corporate Environmental and Industrial Safety Audit Commission (Coaudi), annually, submits to the Executive Board the Corporate Audits Follow-up Report on audits conducted in the period, proposing the corrective actions which may be necessary.

Note: These Guidelines were approved by Petrobras Executive Board on 24 September 1994 (Minutes of Meeting No. 3.966, item 12).

The Systematic of the Corporate Environmental and Industrial Safety Audit Program

Every year the Coaudi, in its annual meeting, defines the schedule of audits for the coming year, selecting the Business Segments and Services to be audited, as well as the initial date and the names of auditors who will be team leaders to conduct each audit.

Pre-Audit Activities

Formation of the Audit Team

- The audit team has 6 members: one (1) Lead Auditor and five (5) team members.
- The Lead Auditor appointed by the Coaudi appoints the other team members from the registry of corporate environmental and industrial safety auditors.
- The team must be a cross-departmental team, and must not have a representative of the audited Business Segment and preferably achieves a balance between the number of Environment and Safety Auditors;
- 60 (sixty) days before the initial date of the audit, the Team Leader submits the proposal for the formation of the team to Coaudi Executive Secretary, which then submits it to the Business Segment to be audited.
- Up to 45 days before the initial date of the audit, the names of the members of the team are confirmed after approval by the Business Segment.

Appointment of Audit Facilitator

- Promptly after definition of the annual schedule, Coaudi Executive Secretary requests from the Business Segments to be audited the appointment of a contact that will act as the facilitator in the audit process.

- The facilitator has to:

- Represent the Business Segment before the Audit team in preparing the audit;
- Coordinate the preparation of the Pre-Audit report;
- Assist in the establishment of audit agenda and interviews requested by the Team.

Pre-Audit report

- 60 (sixty) days before the initial date of the audit Coaudi Executive Secretary must forward to the facilitator the "Instructions to prepare the Pre-Audit report.
- The Pre-Audit Report, to be prepared according to instructions based on the ES Functions Corporate Audit Program Checklist must include, at least, the following information:

- Description of Segment activities, emphasizing actions in the ES areas.
- Business Segment organizational chart, stating management level names and telephones.
- Considerations on the 6 (six) elements in the Checklist:

- Leadership and Commitment;
- Policy and Guidelines;
- Planning;
- Implementation and Operation;
- Assessment and Corrective Action;
- Management Review.

- Copy of the policies, guidelines and guidance regarding the Environmental and Industrial Safety Functions issued by the Segment.
- Other internal documents which the segment views as contributing to the understanding of ES functions management system.
- The Pre-Audit report must be delivered to the Lead Auditor at least thirty (30) days before the initial date of the audit.
- The Lead Auditor must forward a copy of the Report to Team members, within a term of twenty five (25) days before the initial date of the audit, thus enabling team members to familiarize with the report before the Initial Meeting of the Team.

Initial Meeting of the Audit Team

- This meeting has to be held fifteen (15) days before the initial date of the audit and will be attended by the Facilitator of the audited department and the Audit Team to:

- standardize team views regarding the audited Business Segment, audit objectives and development;
- discuss and evaluate the Pre-Audit report;
- identify the aspects of audit procedure, which should be changed in order to reflect the specific conditions of the audited Business Segment;
- prepare the audit schedule, including details on the date and time of the interviews at headquarters and at the Operating Unit(s);
- define the operating units to be visited;
- complete required administrative actions and request necessary resources;

Final confirmation of the audit program:

- Audited Business Unit Facilitator must confirm the audit schedule within a maximum term of 10 (ten) days before the initial date of the audit.

Auditing Activities

Audit Opening Meeting

On the first day of the audit an opening meeting has to be held at the Superintendence of the audited Business Segment attended by the audit team and by the Segment top management. The objectives of this meeting are:

- Describe audit global objects, as well as audit purpose, scope, approach and program;

- Introduce the Audit Team;

Interviews and Visits

- The interviews must be carried out according to a pre-established program.
- At least 1 (one) Operating Unit must be visited and this Unit will be chosen by the Audit Team based on the analysis of the Self-Assessment Report.

Audit Report

An Audit Report must be prepared containing at least the following items:
- Table of Contents
- Management summary stating the Strengths and Areas for Improvement
- Introduction
- Audit Findings containing, for each element in the Checklist, the following items:
- Strengths
- Areas for Improvement
- The Report must be delivered to the Superintendent of the audited Business Segment and to Coaudi Executive Secretary at the closing meeting scheduled for the last day of the audit.

Closing Meeting

- On the last day of the audit a closing meeting must be held, and has to be attended by the management of the audited Business Segment, by the Audit Team and by Coaudi Executive Secretary. At this meeting the Lead Auditor must present the audit results.

Post-Audit Activities

Coaudi Executive Secretary forwards to the audited unit a questionnaire for the evaluation of the audit process and of the Audit Team.

Process Evaluation and Continuous Improvement

Up to 10 (ten) days after completion of the audit, the Audit Team must forward to Coaudi Executive Secretary an evaluation of conducted audit, including a statement of costs. After analyzing the received evaluation Coaudi Executive Secretary must, annually, implement the appropriate changes in the audit process.

Improvement Action Plans

Based on the Audit Report the audited Business Segment must establish improvement action plans to be present at Coaudi annual meeting.

Coaudi Executive Secretary must forward to the auditors a certificate of participation in the ES corporate audit.

Presentation of the Results of the Corporate Environmental and Industrial Safety Audit Program

At Coaudi annual meeting the Corporate Program must be evaluated. This evaluation includes:

- A report of actions implemented in the current year, including cost assessment, to be made by the Executive Secretary;
- Report on improvement actions resulting from the audits, which must be prepared by the Superintendent of audited Business Segments.
- Updating of the guidelines of the Corporate Environmental and Industrial Safety Audit Program to be forwarded to the Executive Board of Company for approval.

INSTRUCTIONS FOR PREPARATION OF THE PRE-AUDIT REPORT

The Business Segment to be audited must prepare a Pre-Audit report containing information on the Business segment and describing how the Environmental and Industrial Safety functions are managed. This report must be forwarded to the Lead Auditor, appointed by Coaudi, until 30 (thirty) days before the initial date of the audit.

The report must include, at least, the following information:

Description of Business Segment activities
Business Segment organizational chart, stating management names and telephones

Considerations on the 6 (six) elements of the Model of Management of the Environmental and Industrial Safety Functions:

Leadership and Commitment

- Describe how Business Segment top management leads supports and controls the process of managing ES functions and how objectives and targets are disseminated and absorbed in the organization.

Policy and/or Guidelines

- Attach Policies and/or Guidelines for the ES functions issued by the Business Segment.
- Describe how these policies and/or guidelines are disseminated and the way in which they are broken down into objectives and targets.

Planning

- Describe the Business Segment programs established targeting the achievement of the objectives and targets defined for the ES areas, including established control items.
- Inform how the identification, guidance and dissemination of ES related legislation is conducted.

Implementation and Operation

- Describe the formal structure of the Business Segment in the ES areas, duties, responsibilities and definition of the authority regarding ES issues.

- Describe action developed in the areas of:

- training and awareness;
- ES related subjects internal and external communication
- establishment of operating procedures incorporating ES related aspects;
- emergency and contingency planning.

Assessment and Corrective Action

- Inform ES function performance indicators used by the Business Segment
- Describe actions implemented by the Segment targeting the prevention and correction of non-conformities in ES areas.

Management Review

- Describe how the Segment reviews its ES Functions Management System

REGISTRY OF CORPORATE ENVIRONMENTAL AND INDUSTRIAL SAFETY AUDITORS

The Company has currently approximately 80 professional trained in specific Environmental and Industrial Safety Audit Courses. All of them have taken specialization courses ministered by the widely known international audit firm Arthur D. Little Inc. Among these professionals are: engineers, environmental, safety, process, equipment, terminals and pipeline, geologists, geophysicists, chemists, agronomists. Some of them are also trained in lead assessors courses based on the international standards ISO 9001, ISO 14001, and BS 8800.

CHECKLIST FOR THE CORPORATE ENVIRONMENTAL AND INDUSTRIAL SAFETY AUDIT PROGRAM

A Checklist was prepared and is used as a guide to conduct Corporate Environmental and Industrial Safety Audits of Petrobras Business Segments, Services, Special Units and Operating Units. This list includes questions and instructions, which are minimum management standards to be followed. Since this is a very long checklist, the questions and instructions of this list, will not be presented in full.

The Checklist was based on the elements of an Environmental and Industrial Safety Management System to be used by an organization, adapted form the following documents:

ISO 14001 - Environmental Management Systems - Specification with Guidance for Use
ISO 14004 - Environmental Management Systems - General Guidelines on Principles, Systems and Supporting Techniques
BS 8800 - Safety and Occupational Health Management Systems

The Checklist includes about 50 questions and instructions related to the management elements of used model:

- Leadership and Commitment
- Policy and/or Guidelines
- Planning
- Identification of ES Aspects in Activities, Services and Products
- Risk Assessment
- Systematic for the Identification, Guidance and Dissemination of the Legislation
- Objectives, Targets and Control Items
- ES Functions Management Programs aimed at the achievement of objectives and targets
- Implementation and Operation
- Structure and Definition of Responsibilities in ES Areas
- Training, Awareness and Competence
- Internal and External Communication
- ES Functions Management System Documentation
- Document Control

- Operating Control Procedures
- Emergency Preparedness and Action
- Assessment and Corrective Action
- Measurement and Monitoring of Main Operating Characteristics, and
- Services which may affect ES Areas
- Actions for the Prevention and Correction of Non Conformities in ES Areas
- Records of Data Regarding ES Areas
- ES Functions Management System Audits
- Management Review

MAIN RESULTS OF THE CORPORATE ENVIRONMENTAL AND INDUSTRIAL SAFETY AUDITING PROGRAM

Petrobras is implementing 3 to 4 environmental and industrial safety corporate audits every year at the various Company Business Segments. These audits normally are fairly complete and have lasted from 1 to 2 weeks. We have been assigning 5 to 6 auditors per ES audit. One of these auditors is the Lead Auditor who normally is a Superintendent of an Operating Unit, 2 team members are experts in environmental issues and 2 in industrial safety or process. In 1998, the Research and Development Center, the Central Administration Service and Petrobras Transport Segment were audited. The contents of the audit reports are for internal use of the Company. In addition action plans are developed by the audited Business Segment to respond to non-conformities or areas for improvement indicated in the ES audits.

CONCLUSIONS

In conclusion, the conduction of environmental and industrial safety audits in an organization is a good management practice, which may guide the actions and investments in these areas. American and European Oil Companies such as, Exxon, Chevron, British Petroleum and Shell (Ref.1) have mature and well structured programs of environmental and industrial safety audits or programs which integrates the three functions environmental, industrial safety and health.

Petrobras Corporate Environmental and Industrial Safety Audit Program is a successful program and has been implemented for 4 years. Other oil or non-oil companies doing business in the Latin American market may use this program. Petrobras currently is updating the Guidelines of its Corporate Environmental and Industrial Safety Audit Program to include the Health function which, to this date, has been audited separately.

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