

# Environmental and safety management

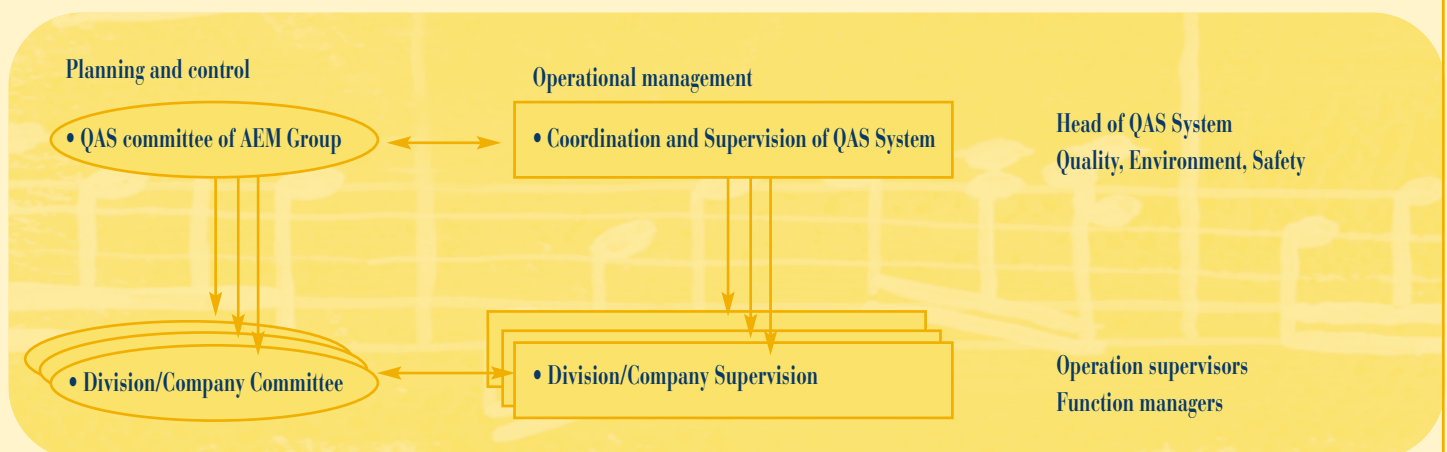


### Most significant events to take place in 2001

- A new AEM Group policy was devised, its business strategies being broadened and a new important focus being on principles for environment-friendly efficiency and sustainability
- The AEM chemical laboratory, which analyses water and waste, was accredited by SINAL (National System for the Accreditation of Laboratories)
- The Group's integrated QAS System was reassessed by CSQ, which went on to reaffirm the validity of certificates issued for compliance with the standards ISO 9001:1994, ISO 14001 and OHSAS 18001
- "Certification" for the Group's Report on the Environment & Safety was obtained for the first time.

### The "QAS" System

The management of environmental and safety issues is integrated with the management of quality in a system known as "QAS": Qualità, Ambiente, Sicurezza [Quality, Environment, Safety].



The System is headed up by the QAS Committee, consisting of the heads of all business areas and chaired by the Group Chairman. The Committee's role is to manage, oversee and reassess the System. Area Committees are also active within individual Divisions and Companies, their purpose being to make reassessment procedures and the valuation of issues characteristic of each productive operation more effective. Average number of reassessments carried out each year: one for the Group, and two for Divisions and Companies.

The Central QAS operates as a staff unit, ensuring that the integrated System is co-ordinated and run properly (e.g. annual planning, audit cycles, non-compliance management), and is responsible for strategy & development plans in respect of environment and safety issues for the Group. Each Division and Company has a QAS Representative, who supports the Area Director and acts as a liaison with the Group's Central QAS Unit.

On the whole, six full-time staff members are dedicated to the operational management of the System within the QAS unit; there are also ten part-time staff in the various group units, who are mainly involved in devising enhancement programmes, conducting audits and organising the various Committees.

## Certifications

AEM's Quality Environment and Safety Management System has been certified under standards ISO 9001 for quality, ISO 14001 for the environment and OHSAS 18001 for safety since March 1999. AEM's thermoelectric plant at Cassano d'Adda has been registered pursuant to the provisions of EC Regulation 1836/93 EMAS (the European Community's Eco-Management and Audit Scheme) since December 1999. AEM's engineering and chemical laboratories have been accredited by SINAL since the year 2000.

### Reference laws for AEM's QAS System

• Quality Systems	ISO 9001: 1994	Whole organisation
• Eco-management system	ISO 14001: 1996	Whole organisation
	EC Reg. 1836/1993	Thermoelectric power station at Cassano d'Adda
• Safety management system	OHSAS 18001	Whole organisation



ISO 9001  
Quality Management



ISO 14001  
Environmental Management



OHSAS 18001  
Health and safety



## Emas at Cassano power plant

AEM has been registered under EC Regulation 1836/93 EMAS in respect of its Cassano d'Adda facility since 1999. Said facility bears the greatest environmental implications for the Group. With the EMAS arrangement now in place for three years, it may be affirmed that the undertaking to improve performance and encourage transparency and communication with all interested parties has been pursued with consistency: taking action whilst also taking the consequences of such action into consideration is now standard practice. A strong sense of responsibility and involvement has been diffused among staff, especially those most immersed in the issues in question. During the year 2002, the Group will implement all the measures needed in order for its registration to be renewed, in accordance with the new EC Regulation 761/2001 EMAS 2 (new environmental analysis, new statement, targeted training plans). Registration should be renewed by the end of the year. In 2003, the possibility of extending EMAS registration to other production-oriented operations will be considered.

## Audits

Audits carried out during the three-year period 1998-2000 enabled AEM to rationalise its audit programme for 2001, as it identified the critical areas needing audits accompanied by inspections. Particularly significant audits were carried out in respect of the processes adopted to manage measurement tools and equipment, manage and design public-lighting projects, and manage waste. The latter process highlighted a number of critical areas with regard to the management of depots and the allocation of operational responsibilities.

The revaluation audit carried out by CSQ in respect of AEM's integrated system highlighted how - although displaying a few signs of fatigue - the QAS model adopted to run processes

**14** internal audits  
**6** external audits  
**400** hours  
**12** auditors

is an integral part of AEM operations. Of particular note is the fact that this audit was carried out separately for the Group's four certified companies (i.e. AEM SpA, AEM Gas, SpA, AEM Elettricità SpA and AEM Trasmissione SpA), while aspects inherent in relationships between said companies were also analysed.

### **Performance control and improvements**

During the first few years in which the integrated system has been in existence, a distinction has been made between the so-called "system objectives" and business objectives that are the "real issues". This kind of double-sided management, although common when management systems are being launched, is in the process of being resolved. By introducing a system of indicators that are closely correlated with its activities and objectives, AEM has been able to create a reference structure that houses all its main commitments and closely ties the various elements responsible for defining end results to one another.

For instance, a structured model is presently undergoing final definition for environmental indicators, which will establish the methodological route needing to be taken to achieve sustainability. The areas and issues needing to be improved upon have also been identified as the sustainable use of resources, protection of the environment and pollution prevention, investor relations, business management issues. This has led AEM to come up with a system involving a broad group of indicators for each separate area and structured along the lines of a pre-established hierarchy. Each manager may individually draw from this model to come up with his own programme. Each separate plan of action should therefore be traced back to a more general framework in respect of which several summary indicators are presently being studied that will allow trends to be "measured". The model upon which AEM's improvement programme is based assumes the structure of its environmental accounting system, the "info-tank" that is also used by AEM's main communication tool: in other words this Report. AEM's idea was therefore to create a "package" of management tools, integrated and consistent with one another, which might help it to pursue and attain its objectives.

### **Environmental accounting**

AEM has been using a physical and economic environmental accounting system since 1997, in order to manage environmental issues by both auditing those elements bearing an environmental impact and arising from the various productive processes (i.e. pollutant emission rates, the use of natural resources and raw materials) and quantifying the actual economic magnitudes correlated to the environmental variable (environmental costs).

#### **Physical environmental accounting**

The physical accounting collects data on the resources used and emissions into the environment, identified on the basis of an analysis of processes, the creation of a conceptually simplified model of these processes and the identification of correlated environmentally significant aspects. The quantities involved are obtained with a breakdown that goes as far as to provide input-output flows for individual facilities and are then grouped together by their common areas of activity. The database of physical environmental accounting uses this logical organisation and thus enables us to reconstruct the pressure on the environment by each unit of product.

#### **Economic environmental accounting**

Environmental costs may be separated into three different categories, in relation to the main reason for their being incurred:

### **Investments for the sustainable use and management of natural resources**

This includes those investments in sites enabling resources - renewable or otherwise - to be used both rationally and efficiently by combining environmental interest with the Company's business and strategy-driven decisions. This kind of cost may be broken down as per the list of resources produced by SERIEE methodology (Système Européen pour le rassemblement des informations économiques sur l'environnement - European System for the Collection of Economic Information on the Environment) with a number of additions to help describe AEM processes more fully: water resource, fossil energy, electricity.

Investments are classified by type: increase in the efficiency of thermoelectric sites, co-generation, energy recovery and savings, rational use of water in the hydroelectric sector.

### **Environmental protection costs**

Such costs are incurred in respect of activities and devices geared to prevent, reduce and control pollution, as well as to restore environmental functions and conditions. They are identified in accordance with SERIEE methodology, in turn supplemented in order for a number of environmental aspects that are typical of AEM processes to be described in greater detail. Such costs are spread over those "environmental sectors" at which special protection-oriented activities are aimed: air and climate, surface water, soil and underground water, waste, noise and vibrations, bio-diversity and landscape, management of electrical and magnetic fields, use and management of hazardous substances.

### **Other environment-related costs**

These relate to activities of a predominantly operational nature or relations with interested parties, e.g. environmental management costs, insurance against damage that may be caused by pollution, and the cost of communication or co-operation with other public or private organisations with regard to environmental issues.

### **Integration between economic environmental accounting and analytical accounting**

AEM's economic environmental accounting system is integrated with its analytical and general accounting system. Indeed, these two accounting systems share certain accounting elements (internal orders or cost centres) with their features (amounts, nature of the costs, activities/physical location where they are originated etc.). This allows AEM to obtain an accurate estimate of environmental costs, ascertain how they are distributed evenly with business accounting and identify their "nature". It also potentially allows AEM to produce its environmental budget. It is worth underlining how the presence of a structured and integrated system acts as a solid support tool for environmental accounting purposes. More than anything else though, it serves as a starting point, since in order for environmental accounting to become operative, the commitment of all company sectors is required, as is the solid involvement of the individuals working within them. Such individuals are responsible for recognising, extrapolating, planning and quantifying the environmental impact of the activities they manage.

### **Health and safety accounting**

In 1999, a reference model for the monitoring of special indicators in respect of safety-oriented activities was defined and underwent gradual implementation. By accurately noting events and the activities embarked upon by AEM in pursuing enhancement objectives, the model enables the effectiveness of the various initiatives followed to be assessed and the areas most needing to be addressed by AEM's Prevention and Protection Department to be identified.

In short, the model divides the various indicators into two sections. The first contains activities

that relate largely to all “proactive” indicators (management procedures adopted by AEM’s business system, including the commitment to update documentation - internal regulations, etc.), auditing operations (audits, construction site assessments) as well as information and training-related activities (directed towards Prevention and Protection Department staff, emergency teams and other personnel, which may include meetings regarding safety issues and emergency/evacuation drills). The section relating to results contains “processes” that include all indicators that express the outcome of activities undertaken. In this regard, attention is focused in particular on undesired effects such as accidents, mishaps (near misses), work-related illnesses, incidents involving company transport, emergencies and action taken by compliance authorities. Monitoring activities are rounded off with a six-monthly report being produced regarding the various indicators. This report includes a section that sets out the various objectives established under the company’s QAS programmes, with the stages reached by them expressed as percentages.

Moreover, said report, which is constantly being supplemented and perfected, also provides an opportunity to exchange and compare data with other players involved in the process and system managers. This may provide information that is useful when defining objectives and corrective action plans and/or enhancement projects needing to be included in the various QAS operating programmes at a company and/or division level.

### **Economic accounting**

The last two years have seen the development and testing of an accounting model for costs relating to the management of AEM’s prevention and protection system. Said costs are broken down into correction-driven expenses and prevention-related expenses. Correction-driven expenses essentially relate to accidents (work-related or otherwise), which in turn include costs arising directly as a result of the accident victim’s absence and indirect costs that estimate the action needed to handle the event concerned, in terms of both relations with outside bodies (INAIL - national institution for the prevention of accidents at work - and the Public Safety Commission) and the organisational impact on operations within the unit that the injured worker belongs to. Prevention-related expenses include the following: amounts spent on staff permanently devoted to AEM’s Prevention and Protection Department; costs for internal and external resources undertaking hygiene controls; costs for training/information disclosure; costs for updating/maintenance of special software (e.g. applications for switchboard operators with defective sight); costs for updating/maintaining certification and accreditation following AEM’s decision to comply with “voluntary regulations” (OHSAS); costs for the purchase and reintegration of safety devices (accident-prevention systems); and costs for the processing of internal documentation (e.g. procedures, manuals, reports).

Prevention-related expenses do not include “fixed” charges such as INAIL contributions and premiums for the private pension that AEM takes out annually in favour of its staff in respect of non-industrial injuries. Neither do such expenses include costs incurred in updating and improving operating structures, which are instead charged directly to the processes concerned. Commitment in monetary terms is analysed by using a summary ratio that presents the two accounting items (correction and prevention related expenses) in relation to one another. This is effectively a figure representing the ratio between the two amounts, which to reflect a positive trend should be close to zero. This target must be reached by aiming for the right balance between the two elements used in the ratio, i.e. by focusing on reducing correction-driven expenses (meaning a reduction in accidents) without making an excessive shift.