



FOCUSING ON THE ENVIRONMENT

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Abstract

Safety of our packages and operations is our first concern to ensure protection for people and the environment. Environmental impact generated by COGEMA LOGISTICS activities is also covered by an environmental management approach.

This systematical environmental management approach starts with the design phase of new products and processes and meets several objectives:

- to reduce the environmental impact of our direct activities by optimizing the maintenance, management and storage of our fleet,
- to inform and develop awareness among our suppliers and incite them to join us in this approach. We favor the development of partnerships with our suppliers so as to work together to improve our products and services.

As part of AREVA's policy of sustainable development, COGEMA LOGISTICS has decided to expand the management system at the environment using the ISO 14001 model. The associated ISO certification was obtained in February 2003 for all our activities and locations. In this context and beyond the compliance with regulations, COGEMA LOGISTICS undertakes to prevent all types of pollution and continuously improve environmental performance, together with customers, authorities, suppliers and local partners.

With this guiding principle, new package design or new means of transportation take into account an environmental analysis.

Relevant dispositions were introduced in our Quality Security Environment (QSE) management system, at different steps:

- tender review,
- pre-design review,
- design review,
- qualification test,
- feedback disposition (manufactory, transport, maintenance, operation).

This presentation intends to show how our quality management system, can be usefully complemented by an environmental approach.

Introduction

COGEMA LOGISTICS, a subsidiary of COGEMA (AREVA Group) provides solutions for all radioactive materials transportation and dry storage needs, from packages design to transport operations and associated services. Its mission is to guarantee environmental protection (in the broad sense) for all activities. Indeed, the IAEA in the Regulations of transport of radioactive materials specifies (1996 Edition - Revised): "These Regulations establish standards of safety which provide an acceptable level of control of the radiation, criticality and thermal hazards to persons, property and the environment that are associated with the transport of radioactive materials". To speak about environment in this context is thus not a novelty. On the other hand, speaking about environmental protection in a wider context connotation than just "safety" (that of the requirements of the ISO 14 001 Standard "System of environmental management") can constitute a new approach for some people or entities. The following article aims to

clarify why we want to move ahead in this field, and shows – from an environmental point of view – the opportunities provided by an integrated management system.

1. Why we want to move ahead?

When a company implements a Quality Security Environment (QSE) integrated management system it provides a harmonious organization. The purpose of this particular system is to meet, simply and economically, both common and specific requirements as regards Quality, Safety and Environmental protection.

QSE management considers various risks in an integrated way. These risks include product risks, health risks to workers and environmental risks. The value of this approach is that there is just one management system, one certificate, one simple set of document. Also, there is more involvement of managers and employees in the company's projects for integrating QSE criteria.

Integrating the ISO 14001 standard requires that we draw up and formalize a list of the environmental aspects generated by the company's activities. This work allows the company to systematically check all the actions carried out by all staff in order to ensure the mastering of the specific field of environment.

In the case of an engineering and forwarding company, implementation of an environmental improvement approach within the meaning of the ISO 14001 Standard can appear as low wedged for an integrated system. Indeed, the risk is that conclusion is too rapidly taken; environmental impacts are limited to a little or no waste production (paper) and to a non-significant consumption of water, electricity, ... compared to a manufacturing unit. Thanks to the integrated management system, environmental impact analysis is studied throughout application of the instructions transmitted to subcontracting units by the engineering and forwarding company. In this case, the environmental impact is generated, on one hand indirectly by the company, and on the other hand directly (i.e. physically) by subcontractors. In fact the instructions written by the company establish the environmental impact for the supplier. Examples of this environmental impact are given below:

Manufacturing in an engineering and forwarding company covers equipment manufacturing control and new processes implementation. The physical manufacturing is sub-contracted. Instructions transmitted to subcontractors may indirectly generate a variety of different types of environmental impact. For example, for the TNTM 12 family packaging, the pouring process of resin directly generates waste: rinsing effluents, polymerized blocks of resin, remainders of powder bags opened at the end of a series, out-dated products, tools and work clothes. A second example is the non-destructive checking by liquid penetrant which generate wastes and organic effluents, disturbing the traditional way of elimination.

In the transport field, we have more than 3000 multi-modal shipments per year. Depending on the transport mode selected, these shipments may represent between 8500 tons to 38600 tons of CO₂ emitted.

Subcontractors ensure management and maintenance of the physical packaging fleet. The environmental impact of maintenance are mainly wastes (spare parts, technological waste) and effluents generated by the equipment decontamination. (For example, the resulting decontamination effluents of all materials in rotation over one year in Marcoule workshop correspond to several casks of waste to send to waste repository).

These selected examples, which are independent of safety considerations, highlight the need for integrating environmental criteria into the life cycle analysis of materials and/or services suggested by the engineering and forwarding company. These criteria, in an integrated system, will ensure coherence in the already existing decision processes.

2. How we move ahead?

2.1. Context and Standard choice

Context:

The sustainable development concept has come of age. It is now up to leading companies to implement (with the involvement of stakeholders) continuous progress plans with road maps integrating the environmental dimension. From the environmental point of view, implementation of ISO 14001 standard allows the structured integration both of the environmental dimension and stakeholders' involvement mentioned in the sustainable development concept. For

example, public opinion, local populations and media have become increasingly present stakeholders with the transfer to the companies of responsibilities for environmental and social progress. The latter are in line with two main primary sustainable development principles.

Parallels between ISO 9001:2000 and ISO 14001 standards

The ISO 9001 standard follows a linear scheme into the company processes: treatment of the customer order, invitation to tender, drafting of the contract and after-sales service. This standard includes the following intermediate stages: design, purchase, manufacturing, control, storage, handling and forwarding. It gives a framework to the bilateral relation between customer and supplier. In the case of a company, which has already integrated this standard, implementation of the ISO 14001 standard requirements does not raise any difficulty. Indeed, operational processes and instructions (if required to supplement) already exist, as well as the required documentary system, the setting-up of the corrective actions, preventive actions, etc.

The Table below illustrates some examples, which indicate the ease with which the ISO 14001 standard can be integrated into the existing systems:

Example : fields covered by the ISO 9001: 2000 standard	ISO 14001 standard contribution
Quality plan	Environmental aspects, legal and other requirements, objective and targets, environmental management program(s)*
Tender review/customer	Integrate environmental customer requirements to the tender review
Design	Integrate an environmental analysis relating to the technical solution retained.
Purchase	Integrate environmental evaluation criteria in the purchase process
Maintenance	Integrate an annual environmental feedback
Transport	Integrate environmental criterion in the design of new means of transports
Training	Complete training plan on environmental protection matters Integrate and apply an environmental awareness Assess staff competence in the environmental field

* Identification of environmental aspects covers radiological and non-radiological impacts likely to be generated.

2.2. Environmental actions

Actions presented below are the good practices that an engineering and forwarding company should implemented.

Actions related to the customer:

Customer satisfaction depends increasingly on quality and service provided. In this context, customers' environmental concerns are also increasingly important, implementation of these concerns becomes data which must systematically be integrated into tenders. The answer to these concerns must be in accordance with the customers' requirements. Thus, the first action is to make an inventory of the customers' environmental wishes and values and to implement them into the environmental program management.

Actions related to the design:

Design (of both material and means of transport) is one of our key activities. The integration of an environmental action plan requires the use of an environmental feedback system, developed for each sub-contracted activity. Thus, the first action to be carried out is to establish a feedback system related to manufacturing, operations and maintenance. An environmental feedback system of dismantling must, if it exists, be used. This general experience can then be used as a basis for consideration and discussion for designers. Results are integrated into analysis methodologies of the environmental, safety, economic, etc values. Also, results allow us to ask targeted questions such as:

- Quantity to be produced: did one optimize this quantity according to the real existing and future needs? What is the unit mass of the product?
- Constitutive materials of the product: After having fulfilled safety criteria and customer requirements, is there latitude on the choice of materials? What is the main environmental impact - related to the nature of materials – generated during manufacturing, operation and dismantling?

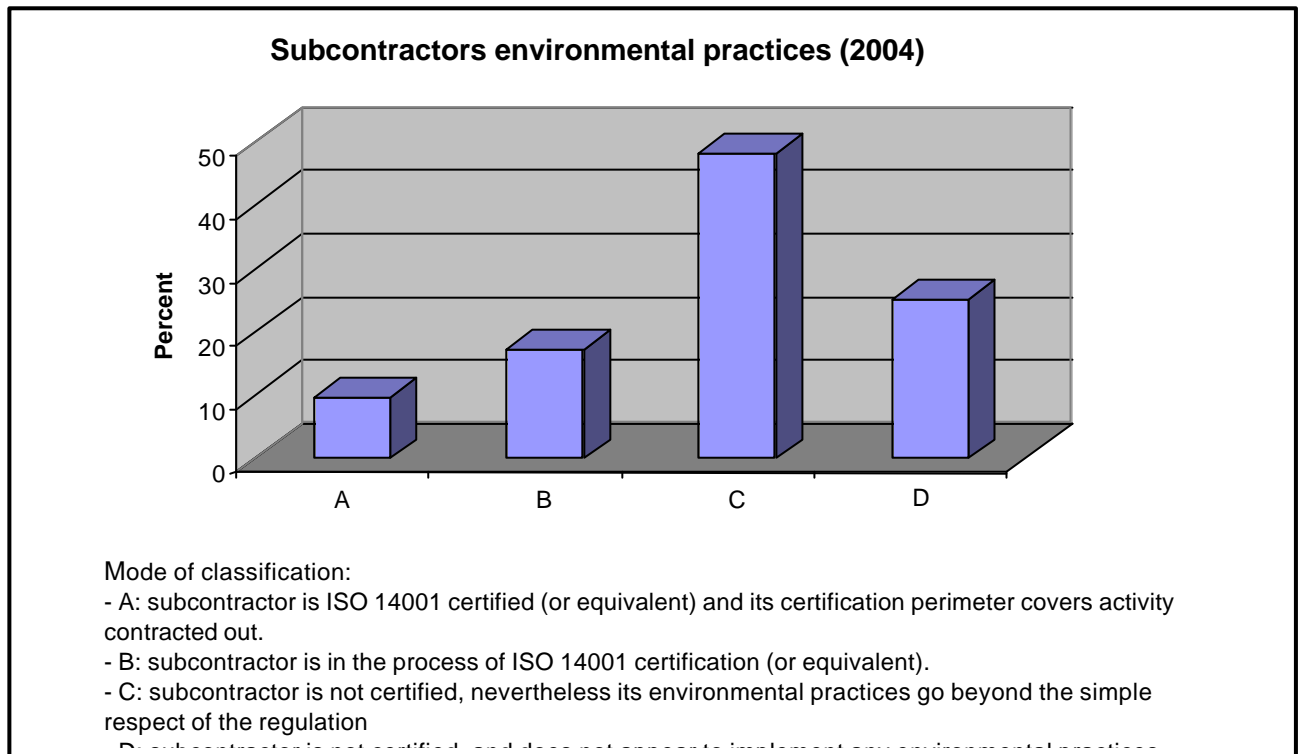
- Processes used during material manufacture: What are the intermediate compounds, techniques and processes necessary to manufacture? What is the environmental impact of each?
- Operations: Has the material lifetime been optimized? Was the amount of necessary handling optimized? Has the quantity of spare parts needed been optimized?
- Dismantling: Will the product be simple to dismantle? Could it be re-used? Have the possible different treatments or recycling possibilities at the end of its life been studied?

Applied to a given material, answers to these questions are used to produce an environmental analysis, which will follow the material throughout its life.

Actions related to the suppliers:

Subcontractors constitute one of the main stakeholders. An environmental action plan integrates the related environmental impacts generated and the state of subcontractor’s environmental practices. Thus, there are two objectives: 1) to improve the technical choices carried out as well as the specifications transmitted to subcontractors 2) to lead subcontractors to set up an environmental progress plan. These objectives can be defined through the following actions:

- To make an inventory of subcontractors environmental practices. COGEMA LOGISTICS has decided to carry out this work in 2002-2003. The following graph presents the local conditions of the environmental practices in 2004.



This graph shows that the percentage of subcontractors being engaged is significant (75 %). Note also the percentage of suppliers engaged in ISO 14001 certification or equivalent (17 %) showing a trend to be recognized by external sources.

- To complete quality and safety requirements by environmental requirements. The primary requirement is for subcontractors to comply with all legal standards and to be able to demonstrate compliance with these standards.
- By comparing the effective subcontractors’ environmental practices, we can introduce into the purchase processes some environmental selection criteria. These criteria can relate to the existence of an environmental

management system (recognized or not), existence of a relevant environmental action plan, existence of a waste management policy...

- To supervise subcontractors' environmental practices: during the follow-up and monitoring of product manufacture or with a service. The action consists in integrating an environmental monitoring. This monitoring is carried out on the basis of information provided by the subcontractor or on the basis of practices taken by the subcontractor in comparison to relevant regulation.
- To organize regular meetings with key subcontractors in the environmental protection field. This action is leading to the development of common improvement actions. COGEMA LOGISTICS led at least one meeting with every key subcontractor for one kind of activity likely to generate environmental impact. It also helps for the improvement of the specifications transmitted to the subcontractors.

Actions related to operations:

In accordance with quality, security, safety, environmental concerns (reduction of radiological and non radiological impacts), fields covered by operations are:

- Organization and follow-up of the transportation of radioactive materials,
- Programming and follow-up of the maintenance of materials,
- Organization of the dismantling of materials reaching end of life.

It is first important to emphasize that the compliance with the safety criteria guarantees the integrity of the package and thus ensures the absence of any significant radiological impact on the environment.

- All transportation vehicles are controlled by various means, satellite transmitters follow-up in real time. This real-time tracking is a strong preventive environmental action. It is one of the key components of the dedicated organization implemented for efficient reaction in the event of any incident or accident, thus providing for limited consequences. The related resources which lies on a Transport Emergency & Intervention Plan is composed of emergency teams (technical, logistics, communication experts) and emergency means made available to the authorities concerned. It organizes the human resources needed and equipment making it possible to analyse the situation, participate in the intervention (first safety or preventive action designed to limit environmental impact for example) and perform all communications necessary and related to the crisis. Two last actions are corrective environmental actions.

Controls carried out in the framework of transport operations generate technological wastes, which have an environmental impact. Experience shows us that some relevant actions may optimize these controls and reduce the quantity of technological waste.

- Concerning maintenance of the materials, the following actions can be taken:
To carry out a regular feedback on the spare parts consumption according to the type of material and to the various types of maintenance. Then, according to the results, to revise programming of maintenance in order to optimize the gestures and thus the waste production.
To set up partnerships with subcontractors in charge of maintenance. This action allows identifying useless gestures or specifications to be improved in order to decrease the quantity of waste (others than spare parts).
- Concerning the dismantling organization, the main action lies on the development of an environmental study. This study includes a legal analysis of the activity and its consequences on the fleet material concerned, an analysis of the various possible ways to evacuate the material and the feasibility study of the solutions from a technical, economic and environmental point of view.

Conclusion:

COGEMA LOGISTICS has granted ISO 14001 certification since February 2003.

ISO 14001 principles implementation within an integrated system is atypical compared to the approach taken by a factory or a plant. Indeed, the latter can directly improve its environmental impacts, contrary to an engineering and forwarding company that will be only able to improve them indirectly.

Three main axis arise from this article:

- The first axis is the basis upon which all actions are carried out. Integration of the environmental criterion at the design level reflects the environmental improvement in the long term. Main environmental impacts related to the products will be identified at this level. At this level also, it is necessary to improve this impact for all stages in the life cycle of a product (understood as manufacturing, exploitation, dismantling,...).
- Environmental continuous progress is coherent with the sustainable development concept. From an environmental point of view, it allows establishment of a link between present and future environmental impact – the latter being generated by the company - and present and future customers needs. A product sold to a customer - whose design integrates for example a relevant dismantling study - can, on one hand, satisfy the customer's long-term concerns and, on the other hand, prevent the environmental impacts that inevitably arise during this product life stage.
- The last axis is the control of subcontractors. Indeed, the environmental impact of the retained solutions is generated by the subcontractors. This is the reason why, without forgetting actions which a company must carry out to improve its own specifications, its role is also to work - in a long term scope – with suppliers and partners which are reliable and respectful of the environment. This axis requires the selection of this type of supplier, their assistance and their monitoring.

In conclusion, any engineering and forwarding company, thanks to an integrated system, should be able to implement an environmental continuous progress in its activities and the concrete actions to take... which are indeed relevant. But, finally, the issue asked by this article is the following one: can a company - whose mission is to guarantee environmental protection – ignore the whole industry movement towards the precepts followed by the ISO 14001 Standard? And more still by those of the sustainable development? Can it escape an evaluation from the outside world, such as the ISO 14001 external auditors?

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