
OPAS—Operations Quality Assurance System for a Radioactive Material Transport Company

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INTRODUCTION

Here OPAS is the acronym for "Operations Quality Assurance System for a Radioactive Material Transport Company".

Nuclear Cargo + Service GmbH (NCS) has decided to install this system, because a quality manual "Containers" has been obligatory since a few years and a quality manual "Transports" will become a legal requirement next year. An additional reason to install OPAS as soon as possible were the yearly increasing quantity of laws and ordinances, the also increasing necessary qualification of the staff and the quality of transport equipment etc. Also the widespread refusal of the nuclear industry by the German people makes it essential to NCS to operate perfectly.

Therefore NCS has planned, developed and is implementing OPAS, its own quality system covering all safety related operations.

What is NCS doing? The main activity of NCS is the organization and realization of transports of radioactive materials and other dangerous goods. This includes mainly the design, licensing, procurement and operation of containers, special security vehicles, security systems, communication- and localization systems, storage of radioactive materials and dangerous goods.

This is a widespread field of business for a company employing around 60 people. It gave us a lot of problems at the planning of OPAS, because it was not feasible to regulate all this activities with one quality manual. After a lot of internal discussions we decided to make available 5 quality manuals. These manuals had to be easily understandable and usable in view of the different levels of education of the staff: there are engineers, physical scientists, forwarding agents and the truck-drivers of security vehicles.

THE NCS QUALITY ASSURANCE PHILOSOPHY

One of the main objects of NCS is to assure the public and operational safety while shipping radioactive material. A high quality standard in order to fulfill this rule is essential. That is meaning:

- "zero-defect principle" for all safety- and security relevant items
- "nearly zero-defect principle" for all other items
- optimization of operations and
- optimal professionalism of the staff.

NCS meets these requirements by:

- the use of hard- and software which is in compliance with the state of the art,
- the utilization of matured methods for the maintenance of the technical equipment and the realization of transport,
- the employment of qualified, trained and motivated staff,
- the training of the staff in regular intervals,
- the use of a tailor-made quality system.

OPAS secures on the basis of these provisions:

- safe operations
- compliance with laws, ordinances and regulations
- proper information flow
- adequate control
- backflow of experience
- information of the management.

QUALITY-SYSTEM

A conventional organization is not able to satisfactorily fulfill the quality philosophy described. Insofar OPAS influences the structure of our company.

The main tasks in planning OPAS were to

- analyse the tasks of the company
- analyse the structure of the company
- analyse the business relations
- define weak points.

With respect to the widespread and differing fields of activities a

lot of national and international demands had to be considered in the quality system.

Our quality system includes the following 3 operational levels

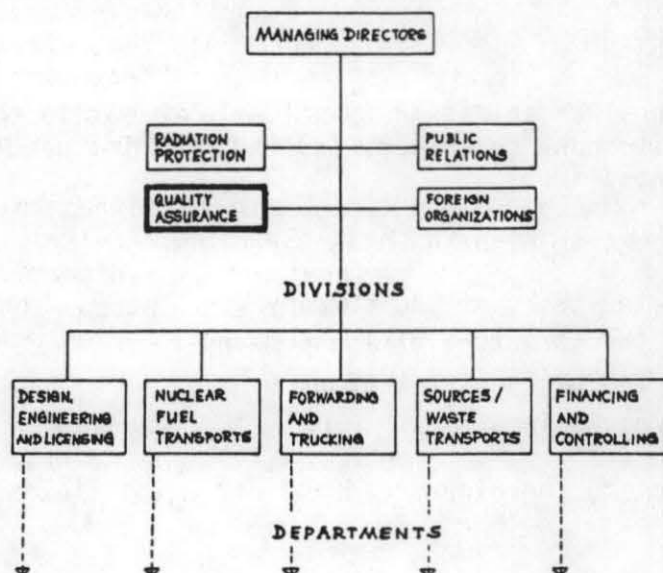
Level	Documentation	quality standard
1 General Company	Corporate quality manual	- ISO 9000 and 9004
2 Divisions	quality manual e.g. "Transports", "Containers"	- ISO 9001 to 9003 - IAEA regulations - several national and international ordinances
3 Functional Level	quality instructions	- NCS internal

The quality system is assembled modular which gives us the guaranty for flexibility and variety in use. This modular system is splitted into

- phases and
- components.

With this modular system we have the opportunity to update easily our quality manual in the case of changes of regulations, ordinances, company-organization and so on, as well as in case of changes of the company activities.

The quality manager has, as it is requested, an independent position, as shown in the following organization chart.



OPAS is a decentralized system, that means the quality manager is responsible for the general function of that system and for special quality problems.

The routine quality operations however have to be performed by the divisions themselves because they have highly specialized knowledge. In these routine operations the preparation of quality-instructions as well as the quality controls are included. Sure, all this has to be supervised and periodically audited by the quality manager.

This strategy is called a "Total Quality Management" (TQM). That means, every employee has to control the quality of his own business before he transmits the documents, the informations, the products etc. to others.

Independent examiners for example the quality manager and his co-workers will only act if

- particular circumstances occur
- internal or external instructions request so.

At the moment the following quality components are accomplished

- corporate quality manual
- quality manual "Containers"
- quality manual "Transports".

In a next step we will prepare 2 additional quality manuals, one for the "Security Systems" and the other one for "Storing of Dangerous Goods, especially Radioactive Materials".

QUALITY-SYSTEM "TRANSPORTS"

The essential part establishing the quality-system was the preparation of the quality manual "Transport" and the relevant quality instructions. The preparation of the manual "Transport" including instructions took us up to now around 600 man hours. We think that we will need approximately 200 man hours more for finishing this part.

Our quality manual "Transports" generally follows the guidelines of the IAEA-Safety Series No. 37, 3rd edition, Advisory Material for the IAEA regulations for the Safe Transport of Radioactive Material. These guidelines are not fully sufficient, because not all the steps necessary for the preparation, realization and documentation of a transport are mentioned.

In order to demonstrate the complexity of the task we prepared flow sheets for security class I shipments. Starting from the highest level is simplifying the task for all the other types of shipments.

How did we compose the flow sheet for transports? First, we defined 6 main fields of application. Afterwards we defined the detailed steps of each field of application as well as the associations and cross-links between the main fields of application of this flow sheet.

Which detailed informations could be taken from this flow sheet?

- minimum quantity of data necessary for each transport from the customer
- minimum requirements for the internal transmission of informations
- definition of hold points
- precise definition of responsibilities
- definitions of documents, licenses and papers to be available at defined junctions
- actions in case of divergences before, during or after a transport.

Before completing of the manual we reviewed the job descriptions. With the organization chart in one and the flow sheet in the other hand we found out, that in view of quality requirements some modifications of the descriptions were necessary, especially to avoid overlapping responsibilities.

Now we had composed the basic documents for the quality manual "Transport". We did not describe all the details in the manual due to the complexity of the different modes for the transport of radioactive material in the Federal Republic of Germany and world wide. Our aim was to give our colleagues responsible for the transports a good guide for writing the necessary quality-instructions.

Writing of quality-instructions seems to be easy if you have a technical education. If you ask a forwarding-agent to do so, you will receive at first a big surprise of these people and secondly the question: How shall we do that?

Now as a quality manager you have to decide either

- to do the job by yourself, or
- go on the long way to explain the quality system over and over again and to motivate the colleagues to share the burden of writing quality instructions with you.

We choose the last possibility because the motivation and the identification of the employees of our company is the most important point for the existence, acceptance and the further development of our OPAS.