

**Design of the Environmental Management System for the asphalt-roofing factory "Tejas Infinitas" de Camaguey, according to NC ISO 14 001.**

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**EXECUTIVE SUMMARY**

The asphalt-roofing factory "Tejas Infinitas" de Camagüey began its productive activities in July 1959. In over 40 years of operation, several modifications have been made to the existing technology. This organization reaches an annual production average of 500 000 units with a historical production record of 2,966,167 units, achieved in 1985. It has about 200 workers. The main output of the production process is the asphalt-roofing tile which is necessary for governmental programs of housing and agriculture. Asphalt-roofing tiles are produced from paper fibers and asphalt.

A full inspection carried out by local environmental regulatory authorities detected that the company did not comply with key environmental laws and standards in force in Cuba. Authorities noticed that during the manufacture of the asphalt-roofing tiles occurs the emissions of substances into the environment such as gases, vapors, aerosols and smoke which affect air quality in the workplace and around. Moreover, untreated liquid wastes are dumped into a nearby creek and it is frequent oil spills on the ground due to bad practices. As a result, the company decided to make the necessary to alleviate the environmental impact it causes on the environment, and comply with the existing environmental regulations.

A possible solution found to manage the environmental problems detected was through the implementation of an Environmental Management System (EMS) based on the international standard ISO 14 001. Such a system not only help controlling the significant environmental aspects but it can be integrated into an organization's strategic planning process and allows it a continual improvement. Thus, the main objective of this master thesis was the design of the EMS for the asphalt-roofing factory "Tejas Infinitas" de Camagüey. In chapter I, it is presented the results of an initial environmental review performed to the company. It was studied technical aspects, compliance with environmental laws and regulations, industrial safety and hygiene, and energy related aspects. In chapter II, it is identified the significant environmental aspects which cause or may cause significant environmental impacts.

In chapter III, it is defined an adequate environmental policy for the company according to its significant environmental aspects, and it is proposed the environmental management program which established the environmental objectives and targets, actions, responsibilities and timetables. This chapter also recommended the necessary procedures and documents to maintain the EMS. In chapter IV, it is proposed a system of operational control, monitoring and measurement of the significant environmental aspects with the aim of guarantying the continual improvement. Chapter V made a cost-benefit analysis of implementing the proposed EMS. Finally, the EMS proposed was presented to the executive board which gave its approval for implementation.

**Keywords:** significant environmental aspects, environmental management system