

ABSTRACT

Engineering Design and Improvements for an Ammonia Plant to Achieve Environmental Compliance and gain ISO 14001 Certification

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The production of ammonia is not very harmful to the environment. In ammonia production plants, mainly gaseous by-products are formed due to the raw materials used, together with wastewater, waste heat and spent catalysts resulting from the processes used. However, noise and other industrial influences do occur. In general several factors must be considered when assessing the environmental impacts of ammonia production.

The plant studied in this project is an old ammonia plant designed with very little environmental specifications in mind. In the project effluent and emission streams from the plant are identified and areas where non-compliance to the environmental regulations of Trinidad and Tobago exist are highlighted. Engineering design and improvements using best available techniques for an old plant is then proposed as solutions to ensure that the plant will achieve environmental compliance. The project also serves as a step towards gaining ISO 14001 certification by utilizing the ISO guidelines to implement an environmental management system on the plant.

It is concluded that it is important for plants of this kind to be systematically monitored and maintained to guarantee efficient operation and environmental compliance. Priority should be placed on increasing the awareness, and the education and training of operating personnel with regard to environmental issues.

It may be stated that apart from the pollutants due to waste heat and contained in the raw materials, very little environmental impact need be feared from ammonia production provided that environmental protection aspects are taken into account during planning, operation and design modifications.