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TERM PAPER

A CASE STUDY OF QUALITY STANDARDS IMPLEMENTAION IN TASNEE COMPANY

ISO 9001: 2000, ISO 14001:2004 & OHSAS 18001

FOR

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INTRODUCTION

One of the biggest challenges that are facing current organizations is to have an integrated management system that comply with the international standards and meet the organization goals and objectives.

In this paper we will explore the implementation of such integrated system in TASNEE/SPC. The integrated quality management system complies with the following international standards:

➤ ISO 9001 : 2000

ISO 9001:2000 specifies requirements for a quality management system for any organization that needs to demonstrate its ability to consistently provide product that meets customer and applicable regulatory requirements and aims to enhance customer satisfaction. ISO 9001:2000 has been organized in a user-friendly format with terms that are easily recognized by all business sectors. The standard is used for certification/registration and contractual purposes by organizations seeking recognition of their quality management system.

The following paragraphs of the standard are excluded because they are not part of TASNEE/SPC's business processes.

§ 7.3 (ISO 9001:2000), Design and / or development, including all subsections justification.

At present SPC does not design or develop products. All grades of product SPC is producing are specified by standards coming directly from the major Customer, which is also a market leader in petrochemicals. SPC engineering / technical activities are limited to improve the process and for small modifications of the plant.

§ 7.5.2 (ISO 9001:2000), Validation of Processes for Production and Services Provision.

Our processes for production are continuously and subsequently monitored by DCS, laboratory analysis and the control room operators. Processes outputs are released and verified on real time bases. Where deficiencies become apparent within any stage of the production process, adjustments are applied on the spot, and therefore process validation for production is not applicable.

§ 7.5.4 (ISO 9001:2000), Customer Property.

SPC does not handle any material coming from Customers.

None for health, safety and environment

➤ ISO 14001 : 2004

ISO 14001:2004 specifies requirements for an environmental management system to enable an organization to develop and implement a policy and objectives which take into account legal requirements and other requirements to which the organization subscribes, and information about significant environmental aspects. It applies to those environmental aspects that the organization identifies as those which it can control and those which it can influence. It does not itself state specific environmental performance criteria.

ISO 14001:2004 is applicable to any organization that wishes to establish, implement, maintain and improve an environmental management system, to assure itself of conformity with its stated environmental policy, and to demonstrate conformity with ISO 14001:2004 by

- a) making a self-determination and self-declaration, or
- b) seeking confirmation of its conformance by parties having an interest in the organization, such as customers, or
- c) seeking confirmation of its self-declaration by a party external to the organization, or
- d) seeking certification/registration of its environmental management system by an external organization.

➤ OHSAS 18001 : 1999 Occupational Health & Safety Management Systems

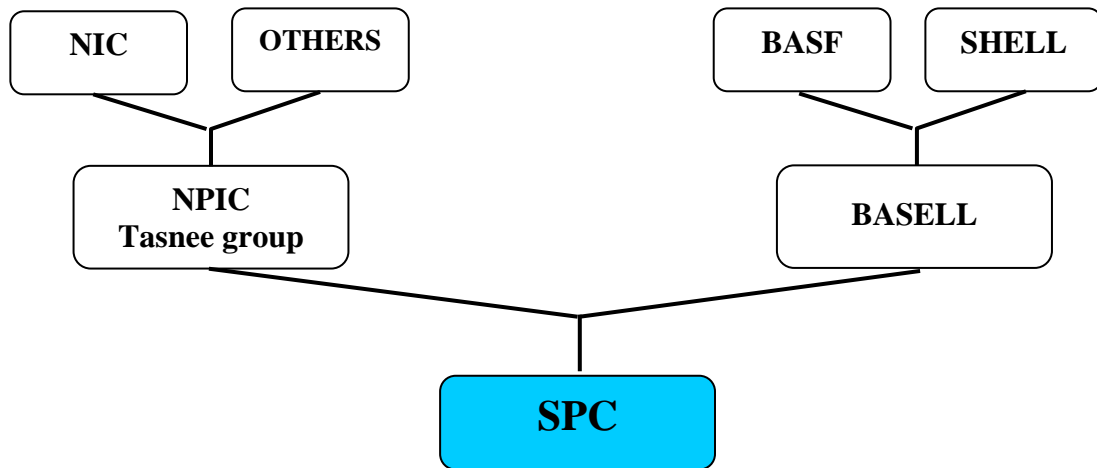
The specification has superseded the BS8800:1996 Guide to occupational health & safety management systems.

The specification gives the requirements for an Occupational Health and Safety management system, to enable an organization to control its OH&S risks and improve its performance.

It requires an organization to conduct a risk assessment, and manage those risks that must include objectives to demonstrate continuous improvement. Similar to the ISO 14001 Environmental Management compliance with legislation must be demonstrated

THE ORGANIZATION IN BRIEF

Saudi Polyolefins Company (SPC) is a Saudi Joint Stock Company established in year 2001 by a partnership between NPIC (Tasnee Group) and BASSELL. The relationship on the shareholding is represented below:



SPC industrial complex is consisting of two chemical plants, a 455 Kt propane dehydrogenation plant providing propylene and a 450 Kt polypropylene plant. SPC is located in Al-Jubail industrial area.

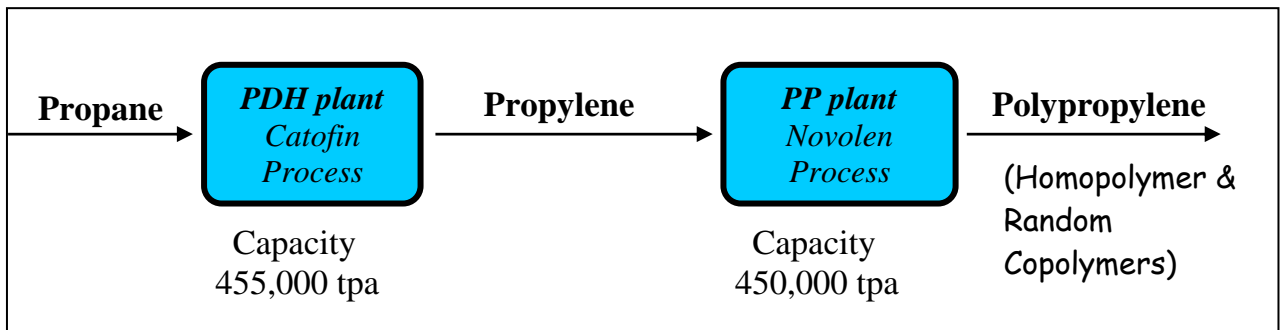


Polypropylene is a thermo plastic multi-purpose material, being used in an extensive range of application in many industries, such as films, fiber, injection molding and blow molding. It is also largely used in automotive industry. Besides Polypropylene can be easily recycled which makes it a safe product and considered as an environmental friendly material.

The production is provided by two different interrelated plants:

- The dehydrogenation plant (PDH) which is converting propane into propylene. It has a capacity of 455.000 tpa and uses the Catofin process.
- The polypropylene plant (PP) converting the propylene coming from PDH into polypropylene. It has a capacity of 450.000 tpa and uses the Novolen process.

The schematic flow of the process is showed below:



METHODOLOGY

A case study approach was used to write this paper. The information was gathered through review of available documentation and observations/interviews of personnel involved in the implementation of the quality management system.

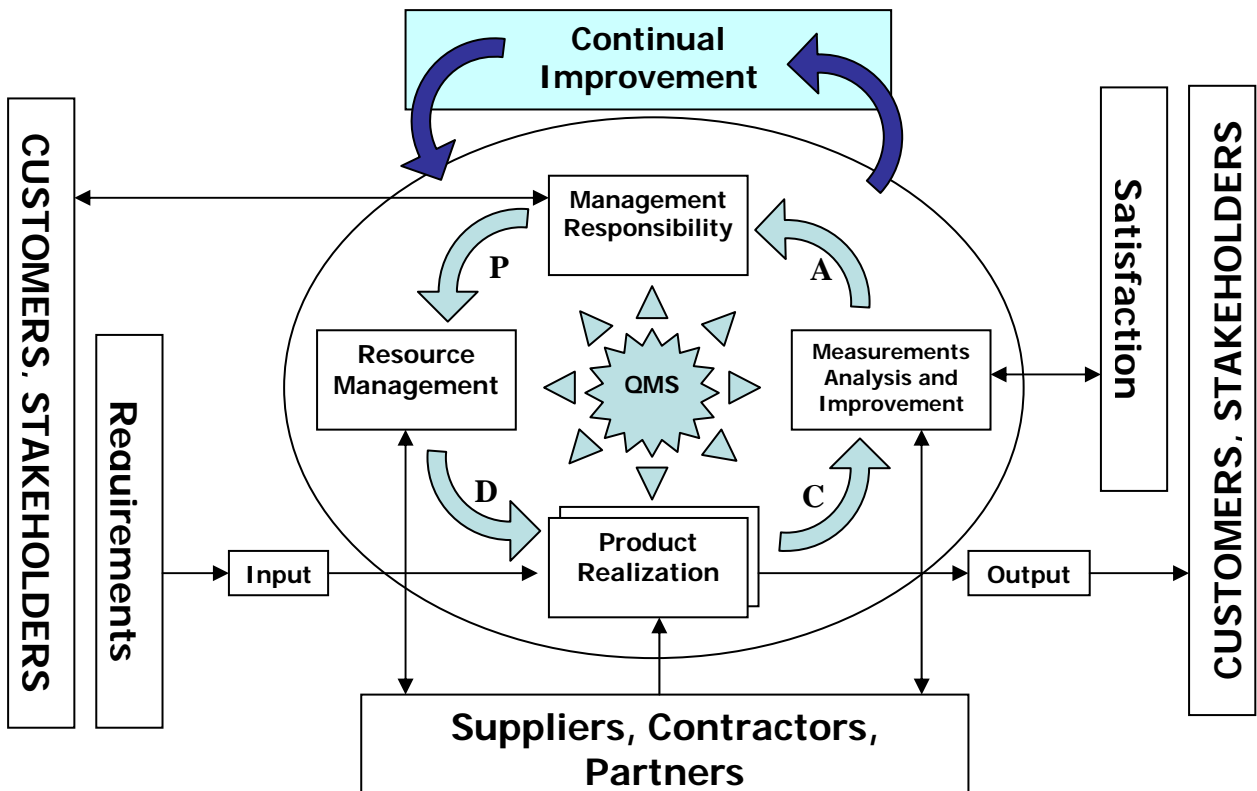
ANALYSIS AND DISCUSSION

The quality management system in TASNEE/SPC was developed to meet the mission statement of the organization and to comply to the three international standards:

- ISO 9001 : 2000
- ISO 14001 : 2004
- OHSAS 18001 : 1999

This system is unique because it is an integrated system covering all the three standards. Below are more details about TASNEE/SPC quality system

The Quality Management System in Tasnee/SPC was developed based on a continual improvement process, as shown in the picture below, reflecting the Deming circle, **Plan**, **Do**, **Check**, **Act**.



Tasnee/SPC has established, documented, implemented and it is maintaining a Quality Management Systems and is continually improving its effectiveness in accordance with the requirement of the international standards.

The organization has:

- Identified the processes needed for the quality, safety, health & environment management system and their application throughout the organization
- Determined the sequence and interaction of these processes
- Determined the criteria and methods needed to ensure that both the operation and control of these processes are effective
- Ensured the availability of resources and information necessary to support the operation and monitoring of the processes
- Monitored, measured and analyzed these processes
- Implemented and implementing actions necessary to achieve planned results and continual improvement of all of these QSHE and business processes.

These processes have been managed by the organization in accordance with the requirements of

ISO 9001:2000, OHSAS 18001:1999 and ISO 14001:2004

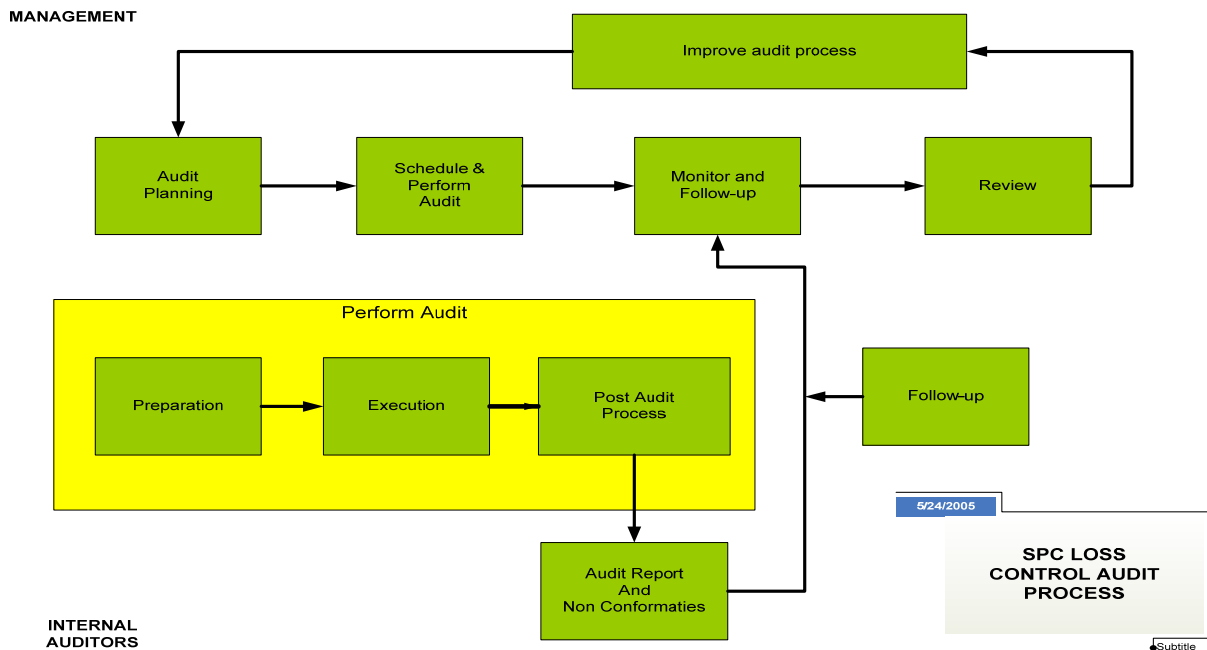
Measurement data are important for making fact-based decisions. The management ensures effective and efficient measurement, collection and validation of data to ensure organization's performance and the satisfaction of interested parties.

In this chapter is described how SPC is replying to the ISO 9001:2000, OHSAS 18001:1999 and ISO 14001:2004 requirements on:

- a) Customer satisfaction: customer satisfaction is the principal objective of Quality Management system, and the level of customer satisfaction is the most important measure of the effectiveness of the system. Customer satisfaction is measured by collecting and analyzing direct feed back, and by measuring secondary indicators of customer satisfaction. Customer satisfaction data and complaints are analyzed and reported to The Management Review to identify opportunities and priorities for improvement.
- b) Auditing and internal auditing: all activities and areas relevant to the QSHE system are audited at least once a year. Audits are scheduled on the basis of the status and importance of the activity. Internal audits are independent of those having responsibility for the audited activity. Identified nonconforming conditions are

brought o the attention of the responsible managers and corrective actions are implemented in response to audit findings.

- c) Monitoring: QSHE system processes are monitored to ensure that they achieve planned results. Day to day activity monitoring is applied to the most of the processes such as production, safety, Logistics management, quality assurance, procurement and finance.
- d) Analysis of NC: non-confirming product is identified, documented evaluated and prevented from being used or shipped. Responsibility for the disposition of nonconforming product is defined. The appropriate authorities are notified. SPC establishes, implement and maintains documented procedures to initiate corrective actions for conditions adverse to quality and to eliminate the causes of potential nonconformities in order to their occurrence. This procedure is documented in, “Non-conformity of finish product”.
- e) Measurement and monitoring of system performance: Key performance indicators are applied to those processes that need to be monitored. The results of the KPI are collected and shown during the periodical management reviews.



The basic philosophy of Risk Control within in the Quality Management System is shown in figure 1.

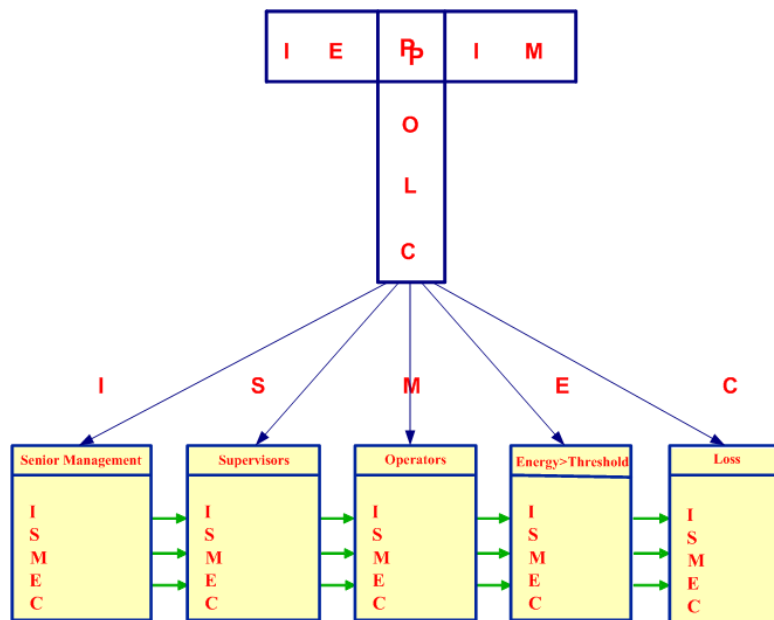


Figure 1 Basic philosophy of Risk Control within SPC

The basic philosophy of Risk Identification and Control within in the Quality Management System consists of five steps;

- 1: **I**dentification of all hazards and risks
- 2: **E**valuation of the risk element within each hazard
- 3: **P**lanning of control measures and development of an action plan
- 4: **I**mplementation of the control measures and action plan
- 5: **M**onitoring the progress & implementation on a periodical basis

These steps correspond to section 4.3.1 of the OHSAS 18001 and ISO 14001 standards.

To comply with the management control and continual improvement aspects (section 4) of the OHSAS 18001 en ISO 14001 standards the **ISMEC** section of the model is applied.

- 1: Identification of the work to be performed
- 2: Standards, procedures & work instructions for activities at all operational levels within the organisation
- 3: Measurement of performance against these standards (external and internal)
- 4: Evaluation of the performance in comparison with the standards
- 5: Commendation for adherence, implementation of corrective & improvement actions

The overall audit and review system consists of 18 elements:

Element 1: Loss Control Management

- 1.1. Integrated Loss Control policy
- 1.2. Management responsibility & objectives
- 1.3. Management meetings
- 1.4. Management tours
- 1.5. Leadership introduction

Element 2: Risk Assessment

- 2.1. Generic HI&RA on primary processes
- 2.2. Critical tasks identification (JSA)
- 2.3. Pre-job hazard analysis
- 2.4. Shutdown hazard analysis
- 2.5 Environmental aspects & significance

Element 3: Loss Control Planning

- 3.1. Long term (Improvement) planning
- 3.2. Loss control year plan
- 3.3. Standards, codes, laws and requirements
- 3.4. Loss Control KPI's and Section KPI's
- 3.5. Individual responsibility for Loss Control?
- 3.6 Environmental planning

Element 4: Organization and Responsibilities

- 4.1. Organisation charts and organisation
- 4.2. Overall Processes, procedures and practices
- 4.3. Jobs / task / authority descriptions
- 4.4. Standard Operating Procedures (SOP's) Production

Element 5: Documentation and Records

- 5.1. Loss Control Management System manual

- 5.2. Document control (per section, external documentation)
- 5.3. Record keeping (what, where, retention time, custodian)
- 5.4. Technical Library
- 5.5 eDMS (Electronic Data Management System)

Element 6: Training and Education

- 6.1. General records
- 6.2. Training needs analysis (TTG system)
- 6.3. Training qualification and systems
- 6.4. General orientation/ induction
- 6.5. Job introduction
- 6.6. Training system evaluation
- 6.7. Critical task analysis
- 6.8 Contractor training

Element 7: Operational Health and Hygiene

- 7.1. Pre-employment medical examinations
- 7.2. Health Surveillance & prevention program
- 7.3. Record keeping and privacy
- 7.3. Health control in the workplace
- 7.4. Clinic facilities
- 7.5. Evaluation and preventive actions

Element 8: Engineering and Design

- 8.1. Design and development planning
- 8.2. Design input and output
- 8.3. Design verification and validation
- 8.4. Design changes, new products
- 8.5. Product liability, service and communication
- 8.6 HAZOP, what if studies etc.

Element 9: Procurement and Logistics

- 9.1. Procurement, specifications, requirements
- 9.2. Non conformities of product (QC)
- 9.3. Supply chain management
- 9.4. Contractor / supplier selection
- 9.5. Managing contractors' work
- 9.6 Storage, Handling and Freighting of products

Element 10: Communication and Motivation

- 10.1. Dissemination of company information
- 10.2. Board meetings, section meetings, department meetings
- 10.3. Personal communication
- 10.4. Task instruction
- 10.5. External communication
(Shareholders, Stakeholders, Royal Commission, Public)

10.6. Reports and notifications (Complaints procedure)

Element 11: Inspections, Housekeeping and Tests

- 11.1. Internal audits and inspections
- 11.2. Critical Loss Control equipment
- 11.3. Prestart -up Safety Review (PSSR)
- 11.4. Housekeeping tours
- 11.5. Preventive maintenance, corrective maintenance, breakdown maintenance
- 11.6. Receiving inspections and tests?
- 11.7. Material inspections and testing
- 11.8. Start-up and tests
- 11.9. (Test) Equipment calibration and measurement
- 11.10 Control & testing of Emergency protection systems

Element 12: Management of Change

- 12.1. MOC Procedure, review and approval
- 12.2. Operations and work processes changes
- 12.3. Management of change in operations
- 12.4 Changes in key personnel
- 12.5. Critical Loss Control devises

Element 13: Rules, Permits and PPE

- 13.1. Operating Permit
- 13.2 General rules
- 13.3. Specific rules
- 13.4. Work Permit system
- 13.5. Rule education and review
- 13.6. Refusal to work
- 13.7. Signs, collars, indications
- 13.8. PPE
- 13.9 Industrial Security
- 13.10 Overriding safety protection systems (DCS, Interlocks, etc)

Element 14:, Observation, Behavior and Discipline

- 14.1. Behaviour observation
- 14.2. Behaviour monitoring
- 14.3. Disciplinary actions
- 14.4. Rule promotion and recognition
- 14.5. Promotion activities

Element 15: Reporting and Investigation of Deviations

- 15.1. Accident, incident reporting & registration system
- 15.2. Non conformance reporting & registration system (internal / external)
- 15.3 Accident & incident investigation and participation
- 15.4. Incident announcements
- 15.5. Near-miss and condition reporting

- 15.6. Corrective and preventive actions
- 15.7. Report files and follow-up
- 15.8. Analysis of incident data, statistics

Element 16: Emergency Preparedness

- 16.1. Emergency analysis
- 16.2. Emergency Control Plan
- 16.3. Emergency communication
- 16.4. Alarms and rescue system
- 16.5. Emergency response team
- 16.6. Scenario Drills and ERT training
- 16.7. JAMAÁ / Civil Defence assistance
- 16.8. Post event planning
- 16.9 Decontamination & clean-up

Element 17: Monitoring and Evaluation

- 17.1. Safety monitoring
- 17.2. Health monitoring
- 17.3. Environmental monitoring
- 17.4. Quality monitoring
- 17.5. System monitoring
- 17.6. Problem solving teams

Element 18: Audits and Reviews

- 18.1. External audit plans
- 18.2. Internal audit plans
- 18.3. Management review (monthly, quarterly, bi-annual)

LIMITATIONS

The main limitation of this report was that not all related information included in this paper due to the confidentiality nature of such documents.

RECOMMENDATIONS

After reviewing the quality management system implemented in Tasnee/SPC, it was clear that such system is a great system and it took a lot of effort to develop, however, to gain the real benefits of such system, it is not enough to have the system in filled documents but needs to be used on daily activity by all members of the organizations.

The system needs to be communicated properly to all employees through official meetings, newsletters, posters, and public events.

Finally as with all other system the critical success factor is full commitment from management team to the system practice in all organization levels.