

## Section 8 – MEASUREMENT, ANALYSIS AND IMPROVEMENT

### 8 Measurement, analysis and improvement

#### 8.1 General

The Quality management system of **KSPHC** encompasses the systems that are planned and implemented for the monitoring, measurement, analysis and improvement processes needed:

- a) To demonstrate conformity of the product
- b) To ensure conformity of the quality management system, and
- c) To continually improve the effectiveness of the quality management system

Document – QMS Processes and Process measures CMD/QMS/02 provides details on applicable method, including statistical techniques, and the extent of their use.

#### 8.2 Monitoring and measurement

##### 8.2.1 Customer satisfaction

KSPHC collects comments, complaints and suggestions, from its stakeholders. These data are compiled, consolidated and analysed to initiate suitable corrective and preventive action in order to enhance customer satisfaction. The above feedbacks will be used for continual improvement.

**Reference: Quality system procedure for customer complaints and feedbacks – QSP 20**

##### 8.2.2 Internal audit

MR and CC-QMS arrange for conduct of audits including internal, external and third party audits, at planned intervals in accordance with documented quality system procedure. The internal audits are aimed to determine whether the quality management system

MR and CC-QMS arranges for and conduct audits at planned intervals in accordance with documented quality system procedure for internal audits- **QSP 21**. The internal audits are aimed to determine whether the quality management system

- a) Conforms to the planned arrangements (see 7.1), to the requirements of the international standard ISO 9001:2000 and to the quality management system requirements established by **KSPHC**, and
- b) Is effectively implemented and maintained.

MR and CC-QMS plan the audit program taking into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits. The audit criteria, scope, frequency and methods are defined in the audit schedule. Selection of auditors and conduct of audits ensures objectivity and impartiality of the audit process. Auditors do not audit their own work.

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The responsibilities and requirements for planning and conducting audits, and for reporting results and maintaining records are defined in the procedure **QSP 21**.

The management responsible for the area being audited takes action without undue delay to eliminate detected nonconformities and their causes. Follow-up activities include verification of the action taken and the reporting of verification results.

**In addition to conducting internal audits stated above which mainly focuses on quality management system practices, the top management recognizes the importance and benefit of having external audits by competent personnel which would focus on organisation’s compliance and its continuing efforts to improve its performance in other facets of business activities such as finance and accounts, statutes and code compliance etc., Planning and conduct of these external audits have been dealt in quality system procedure for external audits – QSP 22**

**Reference:**

**Quality system procedure for**

- 1) Internal audits (QMS) – QSP 21**
- 2) External audits – QSP 22.**

**8.2.3 Monitoring and measurement of processes**

All functions at **KSPHC** have established suitable methods (briefed in relevant system procedures) for monitoring and where applicable, measurement of the quality management system processes. These methods demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, functional heads initiate correction and corrective action, as appropriate, to ensure conformity of the product (of the process).

**See document – QMS Processes and Process measures CMD/QMS/02**

**8.2.4 Monitoring and measuring of product**

Project Engineers monitor and measure the characteristics of the product to verify that product requirements are fulfilled. This is carried out at appropriate stages of the product realization process in accordance with the planned arrangements (see 7.1). Engineers of Quality & Contracts division support this activity.

Evidence of conformity with the acceptance criteria is maintained in product release records. These records indicate the person(s) authorizing release of product.

Product release and service delivery will not proceed until the planned arrangements (see 7.1) have been satisfactorily completed, unless otherwise approved by a relevant authority, and where applicable by the customer.

**Reference: Quality system procedure for Quality Control – QSP 23**

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**8.3 Control of nonconforming product**

Project Engineers and Site Engineers (of sub-contractor agency) ensure that product as well as process which does not conform to requirements is identified and controlled to prevent its unintended use or delivery. The controls and responsibilities and authorities for dealing with nonconforming product are detailed in procedure for control of nonconforming products – **QSP 24**.

Project Engineers and Site Engineers (of sub-contractor agency) maintains records of the nature of nonconformities and subsequent action taken, including concession obtained with regard to nonconforming products. KSPHC in its contract management system has made provisions for ensuring that non-conformities notified during execution of the project are set right by the concerned contractors as per the provisions laid down in QSP 24. When nonconforming product is detected after delivery or use has started, concerned Executive Engineer or the designated AEE initiates action appropriate to the effects, or potential effects, of the nonconformity.

**Reference:**

**Quality system procedure for Control of nonconforming product – QSP 24.**

**8.4 Analysis of data**

**KSPHC** quality management system helps in generation of useful **M.I.S.** reports in addition to inspection & test records and internal audit reports. Requirements of this information are described in system procedures. Further, data is collected which provide information relating to

- a) Customer satisfaction (see 8.2.1).
- b) Conformity to product requirements (see 7.2.1),
- c) Characteristics and trends of processes and product including opportunities for preventive action, and
- d) Suppliers (Contractors).

Through Web-based Project Monitoring System, project status can be known at any given point of time. Project status is updated as and when progress is made. Data from this source is used to generate useful M.I.S, which enables the concerned functional personnel to initiate timely correction and corrective action.

All the data thus maintained is analysed to determine the suitability and effectiveness of the quality management system and to evaluate where continual improvement of the quality management system can be made.

**Reference: Quality system procedure for project monitoring system- QSP 25**

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## 8.5 Improvement

### 8.5.1 Continual improvement

**KSPHC** is committed to continually improve the effectiveness of the quality management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review. M.R. maintains the **records of continual improvement** plans and action taken.

The relevant information needed to learn from projects is derived from information contained within the project, including feedback from customers and other interested parties. Information is also derived from other sources such as project monitoring / project management system, appropriate closure reports, claims, audit results, analysis of data, corrective and preventive actions and project reviews.

### 8.5.2 Corrective action

All process owners take action to eliminate the cause of nonconformity in order to prevent recurrence. They ensure that corrective actions taken are appropriate to the effects of the nonconformities encountered.

Documented procedure defines requirements for

- a) Reviewing nonconformities (including customer complaints)
- b) Determining the causes of nonconformities,
- c) Evaluating the need for action to ensure that nonconformities do not recur,
- d) Determining and implementing action needed,
- e) Records of the results of action taken, and
- f) Reviewing corrective action taken.

**Reference: Quality system procedure for corrective action - QSP 26**

### 8.5.3. Preventive action

All process owners determine action required for eliminating the causes of potential nonconformities in order to prevent their occurrence. Preventive actions taken are appropriate to the potential problems.

Documented procedure defines requirements for

- a) Determining potential nonconformities and their causes,
- b) Evaluating the need for action to prevent occurrence of nonconformities,
- c) Determining and implementing action needed,
- d) Records or results of action taken, and
- e) Reviewing preventive action taken.

**Reference: Quality system procedure for preventive action - QSP 27.**

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