

## Exercise 1

### Quality Principles & Management Systems

Instructions:

1. Record your name and date in space provided below.
2. Read Handout #1, 21CFR820 Quality System Regulation.
3. Answer the five questions listed below. Use additional sheets as needed.
4. Assignment is due next class.

Student Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. What is the definition of a quality system per 21CFR820?

***Quality system means the organizational structure, responsibilities, procedures, processes, and resources for implementing quality management.***

2. Explain the purpose of conducting quality audits?

***“Conduct such audits to assure that the quality system is in compliance with the established quality system requirements and to determine the effectiveness of the quality system.”***

3. Identify the controls needed for production processes?

**Where process controls are needed they shall include:**

- (1) Documented instructions, standard operating procedures (SOP's), and methods that define and control the manner of production;
- (2) Monitoring and control of process parameters and component and device characteristics during production;
- (3) Compliance with specified reference standards or codes;
- (4) The approval of processes and process equipment; and
- (5) Criteria for workmanship which shall be expressed in documented standards or by means of identified and approved representative samples.

**(b) *Production and process changes.* Each manufacturer shall establish and maintain procedures for changes to a specification, method, process, or procedure. Such changes shall be verified or where appropriate validated according to §820.75, before implementation and these activities shall be documented. Changes shall be approved in accordance with §820.40.**

**(c) *Environmental control.* Where environmental conditions could reasonably be expected to have an adverse effect on product quality, the manufacturer shall establish and maintain procedures to adequately control these environmental conditions. Environmental control system(s) shall be periodically inspected to verify that the system, including necessary equipment, is adequate and functioning properly. These activities shall be documented and reviewed.**

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(d) *Personnel*. Each manufacturer shall establish and maintain requirements for the health, cleanliness, personal practices, and clothing of personnel if contact between such personnel and product or environment could reasonably be expected to have an adverse effect on product quality. The manufacturer shall ensure that maintenance and other personnel who are required to work temporarily under special environmental conditions are appropriately trained or supervised by a trained individual.

(e) *Contamination control*. Each manufacturer shall establish and maintain procedures to prevent contamination of equipment or product by substances that could reasonably be expected to have an adverse effect on product quality.

(f) *Buildings*. Buildings shall be of suitable design and contain sufficient space to perform necessary operations, prevent mixups, and assure orderly handling.

(g) *Equipment*. Each manufacturer shall ensure that all equipment used in the manufacturing process meets specified requirements and is appropriately designed, constructed, placed, and installed to facilitate maintenance, adjustment, cleaning, and use.

(1) *Maintenance schedule*. Each manufacturer shall establish and maintain schedules for the adjustment, cleaning, and other maintenance of equipment to ensure that manufacturing specifications are met. Maintenance activities, including the date and individual(s) performing the maintenance activities, shall be documented.

(2) *Inspection*. Each manufacturer shall conduct periodic inspections in accordance with established procedures to ensure adherence to applicable equipment maintenance schedules. The inspections, including the date and individual(s) conducting the inspections, shall be documented.

(3) *Adjustment*. Each manufacturer shall ensure that any inherent limitations or allowable tolerances are visibly posted on or near equipment requiring periodic adjustments or are readily available to personnel performing these adjustments.

(h) *Manufacturing material*. Where a manufacturing material could reasonably be expected to have an adverse effect on product quality, the manufacturer shall establish and maintain procedures for the use and removal of such manufacturing material to ensure that it is removed or limited to an amount that does not adversely affect the device's quality. The removal or reduction of such manufacturing material shall be documented.

(i) *Automated processes*. When computers or automated data processing systems are used as part of production or the quality system, the manufacturer shall validate computer software for its intended use according to an established protocol. All software changes shall be validated before approval and issuance. These validation activities and results shall be documented.

4. Briefly explain the requirements for corrective and preventive actions?

The procedures shall include requirements for:

(1) Analyzing processes, work operations, concessions, quality audit reports, quality records, service records, complaints, returned product, and other sources of quality data to identify existing and potential causes of nonconforming product, or

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**other quality problems. Appropriate statistical methodology shall be employed where necessary to detect recurring quality problems;**

**(2) Investigating the cause of nonconformities relating to product, processes, and the quality system;**

**(3) Identifying the action(s) needed to correct and prevent recurrence of nonconforming product and other quality problems;**

**(4) Verifying or validating the corrective and preventive action to ensure that such action is effective and does not adversely affect the finished device;**

**(5) Implementing and recording changes in methods and procedures needed to correct and prevent identified quality problems;**

**(6) Ensuring that information related to quality problems or nonconforming product is disseminated to those directly responsible for assuring the quality of such product or the prevention of such problems; and**

**(7) Submitting relevant information on identified quality problems, as well as corrective and preventive actions, for management review.**

**(b) All activities required under this section, and their results, shall be documented.**

5. During processing complaints, explain the requirements when no investigation is performed:

**When no investigation is made, the manufacturer shall maintain a record that includes the reason no investigation was made and the name of the individual responsible for the decision not to investigate.**