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**CIDA COURSE ON QUALITY MANAGEMENT**

**"The ASSESSMENT FUNCTION"**

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**1. Objective Of Presentation :**

This presentation deals with the "Assessment function" .

In particular, the following assessment activities will be addressed :

- self assessment
  - self-checking and "peer evaluation "
- auditing
- assessment of Quality Management

**2. Introduction :**

2.1 The importance of assessments arises from the need of management to have an impartial, objective evaluation of quality of performance.

2.2 In the absence of such evaluation, the management might persuade itself that everything is going very well, especially as subordinates might be tempted to provide desired information only. Performance could then deteriorate badly, without management being aware of it.

2.3 In order to become pro active and address problems promptly, the management must be aware of what the emerging problems are. The best way to obtain this information through effective assessment. That is why it is a common practice throughout organizations to conduct assessments.

**3. Self assessment.**

**3.1 Self assessment is the evaluation of the performance or output of an individual or an organization by that individual or that organization , itself. Self assessment is evaluating ones own work and finding out how to do it better.**

3.2 Results of self assessments are applied to modify the inputs, processes, constraints or feedback mechanisms of the system so as to reduce the recurrence of quality problems.

**3.3 Effectiveness of self assessment process depends on management's attitudes and support. Management should use the process in a systematic, unbiased manner to identify the activities which need to be improved .**

3.4 The key is to focus energy toward what has been learned, how to resolve the issue, and how to keep it from recurring.

Focus on **how the system failed the person**, rather than how the person failed the system. Properly implemented self assessment is an essential management tool for long term , continuous improvement.

3.5 When properly carried out, self assessment does not normally result in a conclusion that others should initiate corrective actions.

**Self correction of identified problems is the rule.**

3.6 In order to maximize benefits arising from self-assessment, Management should establish an environment which **nurtures commitment to improvement**, such as :

- promoting understanding among workers as to why the achievement of company goals is important to them and how their specific function impacts on these goals
- workers must have an input to these goals through participation in the preparation of annual work programs
- they must be able to influence how their particular work is done
- there needs to be regular feedback on how their particular department is performing, so that areas needing attention can be identified

3.7 It is important that management **does not endorse, accept or ignore poor practices**. If they do, then it is unlikely that workers will wish to commit themselves to self assessment and improvement.

**3.8 Self-assessment process looks at five issues :**

- is there a performance standard ?
- does the performance meet the standard ?
- are personnel qualified ?
- does existing documentation adequately define the standard, qualifications and performance ?
- is there reasonable expectation that performance will improve in the longer term ?

### **Self checking.**

3.9 Self checking is **self assessment at the most fundamental level**. It has often been demonstrated that a moment's thought before carrying out an action would have prevented an error being made.

3.10 This moment's **reflection before acting** is called "self-checking". It is a practice in which an individual consciously and deliberately reviews the intended action and expected response before performing a task.

3.11 The technique is often referred to as "**STAR**"

**S** TOP - pause before acting, focus attention , review details

**T** HINK - what needs to be done

**A** CT - maintain eye contact with equipment, confirm correct equipment is being acted on

**R** EVIEW - verify that expected response has occurred.

**Peer evaluations :**

3.12 This represents a form of **self- assessment within the management of the utility**. Under this program ,senior operating staff from company's plants are formed into teams to evaluate performance of another plant.

3.13 Evaluations are managed and led by a small core group of experts with extensive operational and evaluation experience within the company. An evaluation typically takes about four weeks, two of which are typically spent at the plant.

3.14 Evaluation examines many aspects of the management process to determine the extent to which the various processes result in meeting the previously established **standard of performance**. Improvements needed are identified as are areas of excellence at the plant.

3.15 Evaluations are performance based, which means that they are carried out by observing and evaluating completion of tasks, as compared to determining if the correct procedures and processes are in place.

3.16 An evaluation team consists of up to 15 evaluators selected from the core group and from operating staff of other plants. These plant personnel have many years of pertinent, first hand experience. Before the evaluation, they will receive training in the evaluation process.

3.17 Different people are usually selected for each evaluation, so that evaluation techniques become widely known and used throughout the company.

3.18 "Observations" are produced during an evaluation. An "observation" is a critical look by the evaluator at the performance of an activity that leads to an objective, factual and detailed written report of problems or outstanding performance witnessed during the conduct of the activity. Observations remain anonymous and no individual is singled out.

3.19 All "observations" are reviewed in detail by a senior evaluator, who has had no involvement in the evaluation to ensure that hard evidence supports observations leading to "concerns".

3.20 Evaluation report is reviewed by the plant management and then presented by the evaluation team manager to senior management.

3.21 The Peer Evaluation process identifies and documents problems very effectively. However, only the plant management can resolve the identified problems. Therefore, for this process to ultimately result in improved performance there must be **strong commitment from senior management** to correcting root causes of identified problems.

**Indications of effectiveness:**

3.22 Achievement of **effective self-assessment** manifests itself when :

- the management as well as employees are clear about the desired level of performance,
- an effective, systematic self assessment process is in place. Emergent problems are resolved in the normal course of work.
- managers are personally involved in assessing the quality of performance.
- self assessment processes are implemented at all management levels, from executive to supervisory.
- line management routinely carries out oversight and assessment of performance , through a number of activities, such as :
  - walking around the plant and observing
  - being visible, available and listening to employees
  - examining trends of performance measures and indicators
  - reviewing results of independent assessments
- if new problems are identified through independent assessments, management routinely asks the question **why has not the organization found it themselves ?**

3.23 Following symptoms indicate that **problems exist in application of self-assessment** :

- problems reach a crisis level and are evident to all before they are formally identified and corrected
- management are repeatedly surprised by emergence of significant problems
- various reasons ( mostly imagined ) are given why identified problems cannot be corrected
- many problems appear repeatedly, even though they have ostensibly been corrected

## **4. Auditing.**

### **Requirements**

4.1 Auditing, as all other QA-related activities, require a **written policy** and a procedure.

Audit policy and procedure shall address the following :

- responsibility, authority and organizational independence of auditors
- provisions for access by audit teams to levels of management which have the responsibility and authority to implement corrective actions
- methods and schedule for setting up, conducting and reporting the audit
- provisions for reasonable and timely access of audit personnel to facilities, documents and personnel
- distribution of audit reports
- provision for follow-up activities
- qualifications and experience of auditors
- details of interaction between auditors and auditee
- generic timetable for audit and post-audit activities.

4.2 All audits shall compare performance against defined specific requirements such as:

- national and international standards
- performance criteria developed by the company or other operating organization (e. g. INPO, WANO )
- utility and plant programmatic and working procedures
- accepted industrial standards

### **Planning**

4.3 An annual program of QA audits at the plant shall be prepared by the auditing authority in consultation with the plant' Quality group, the basic requirement being that all elements of the QA program shall be audited at least every five years.

4.4 The program shall state proposed frequency, topics and scope of audits for the year and for the five year cycle.

4.5 The program has to strike a balance between the basic requirement to conduct audits and :

- availability of resources for conducting audits. Both the auditing unit and the plant have to commit resources to auditing. Consideration must be given to the fact that excessive auditing might detract plant staff from carrying out their duties .

- relative importance of various QA elements for safety and reliability ( the more important elements of QA program should be audited more frequently ).

### **Qualification of auditors.**

4.6 All auditors shall be qualified in accordance with qualification requirements established by the auditing organization.

4.7 The qualification shall be based on following considerations which are to be weighted according to their significance:

- formal education
- pertinent experience in a plant
- professional accomplishment - memberships, papers presented
- managerial experience
- communication skills
- audit and quality assurance training
- audit participation

4.8 Competence in interpersonal and communication skills should weigh heavily in auditor selection. Experience and education of the individual must be balanced against character and personality.

### **Process .**

#### **4.9 Preparation :**

- the audit plan shall be developed based on the audit topic and objective as stated in the annual audit program.
- management of the facility to be audited shall be notified
- audit preparation additionally consists of :
  - formation of audit team and assignment of responsibilities
  - study of specific background material, such as
    - findings from previous audits
    - recent operating experience
  - check lists to be prepared
  - lists of personnel to be contacted
  - deciding on areas of focus for the audit and the basis for their selection
    - preparing a schedule of daily audit activities
- arrangements for independent audit reviews by the audit verifier

#### **4.10 Conduct: following activities are carried out :**

- pre-audit meeting at which the objectives and methods of the audit are introduced to the auditee and discussed
- conduct of field activities

- data collection, through :
  - field inspection
  - observation of work performance
  - examination of plant records ( logs, work reports )
- interviews with plant personnel
- development of **concerns** - the audit team shall review and analyze the facts as found for developing patterns
- development of **findings** - some concerns will be deemed sufficiently important to warrant further investigation. If additional important information is uncovered the concerns shall become "findings " to be included in the audit report
- daily review of audit's progress and discussion of concerns and findings with the auditee's representative.
- exit meeting is conducted shortly after field activities at the plant have been completed and findings finalized. Audit findings are presented to the auditee organization and discussed
- draft audit report is prepared and submitted to auditee who has the opportunity to comment on it, and present the proposed corrective action plans
- final audit report is prepared and submitted to the auditing authority, and the executive of the company

#### **4.11 Follow- up :**

Significant findings are "re-visited " during subsequent audits to assess effectiveness of corrective actions which have been implemented by plant management. If the original problems are found to persist, then corrective action has been proven ineffective and a new approach to the problem is required.

### **5. Assessment of Quality Management.**

5.1 Assessment of effectiveness of Quality Management at the plant hinges on existence of clear **standards of performance and collection and evaluation of pertinent data** which reflects performance in areas of interest to plant management.

#### **Standards of performance :**

5.2 In Canada ,a basic standard for quality management system been developed . There are Quality Standards and the 13 "**Quality Principles** ", on which Ontario Hydro's performance standards are based.

#### **5.3 The "Quality Principles" are :**

- define goals, objectives and policies and ensure they are understood
- specify roles and responsibilities

- specify and communicate results and allocate resources to achieve them
- hold individuals accountable for the work they do
  - clearly define expected results
  - measure performance against results
- ensure people are competent at the work they do
- ensure the right people have the right information at the right time
- seek and use relevant experience
- plan and control work
- use the right material, , equipment and processes, and control any changes
- verify work to ensure it meets the requirements
- identify and remedy deficiencies and their causes
- control the production, use, storage and retrieval of documents and records
- periodically review management and work processes to maintain and improve their effectiveness and efficiency

#### **Collection and evaluation of data.**

5.4 Formal collection mechanisms are:

- self assessments
- review of performance indicators and trends
- reviews of corrective action status and assessments
- significant event reports
- audit and surveillance findings
- regular briefings and reviews
- open meetings with staff

5.5 This data is converted into information through summarizing, analysis and reporting.

5.6 Informally, information can be obtained in the following ways:

- scheduled, but random management tours
- asking penetrating questions at all levels of staff
- walking around the plant and observing work done and standards maintained
- being visible, available and listening to employees

#### **Performance indicators.**

5.7 Indicators are a necessary pre-requisite for continuous measurement of performance and for ascertaining where the performance weaknesses are.



It is very important to select the correct indicators, the criteria for selection being that each measure must be:

- quantitative
- significant ,with respect to what is being measured
- simple, meaning information cannot be misinterpreted
- direct, i.e. measure the effect itself to the extent possible
- readily available
- all important areas of performance should be measured

5.8 For each performance indicator there should be a "standard " and a "target".

"standards" are set by comparison with the best plants in the industry and are an indication of where the plant intends to be in a few years time.

"targets" are set for the plant as a challenging but achievable objective to be reached by the plant within a specified time.

5.9 A word of advice about use of performance indicators:

- indicators measure results. Results are the outcome and cannot be retroactively managed. For improvement, one needs to improve the process.
- performance measures must not be used to penalize people.
- for effective measurement consistent definitions must be used and they should remain unchanged for sufficiently long time for meaningful trends to develop.
- results obtained should be shared with the staff, so that all know how the plant is performing.
- prompt and visible action should be taken to correct deficiencies identified

5.10 Evaluation of data :

Various techniques exist for reviewing and analyzing data .They include :

- root cause analysis
- process flow charting
- histograms
- Pareto analysis
- cause and effect analysis
- control charts
- human performance evaluation system and others.

These techniques help to determine the root cause in terms of human or equipment inadequacies or a combination of both.

### **Indication of effectiveness :**

#### **5.11 Achievement of effective Quality Management manifests itself when :**

- clear statements of responsibility are provided in plant
- personnel are committed to their responsibilities and authorities and are held accountable for results. There is one individual in charge of every process or job.
- managers anticipate problems and plan ahead. Their attention is directed to solving the problems that matter the most.
- an appropriate level of verification to ensure the required level of quality is defined.
- management as well as employees are clear about the desired level of performance
- program weaknesses and management barriers that hinder individuals and the organization from achieving their objectives are identified and corrected
- personnel are involved in the identification and timely removal of obstacles to excellent performance through, among others, formation of appropriate teams
- performance trends show steady improvement

#### **5.12 Following symptoms should alert management to the possibility of significant performance problems developing:**

- lack of critical evaluation of plant performance and pro- active identification and correction of problems.
- lack of performance standards and performance indicators which can be directly compared to other plants
- there is a large, and growing backlog of previously identified problems.
- procedures out of date, routinely not followed and shortcuts taken.
- evidence that individuals have attempted to cover up their mistakes or those of their peers
- management decisions predominantly favor production over quality or safety concerns
- attitude of minimal compliance with mandatory and statutory requirements
- self-imposed exile from the rest of the nuclear industry. The plant is falling behind in understanding and meeting a changing set of industry standards and regulatory expectations.

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