THE ROLE OF PERFORMANCE ASSESSMENT GROUPS IN BRINGING THE OPG MAINTENANCE TO WORLD CLASS LEVEL.

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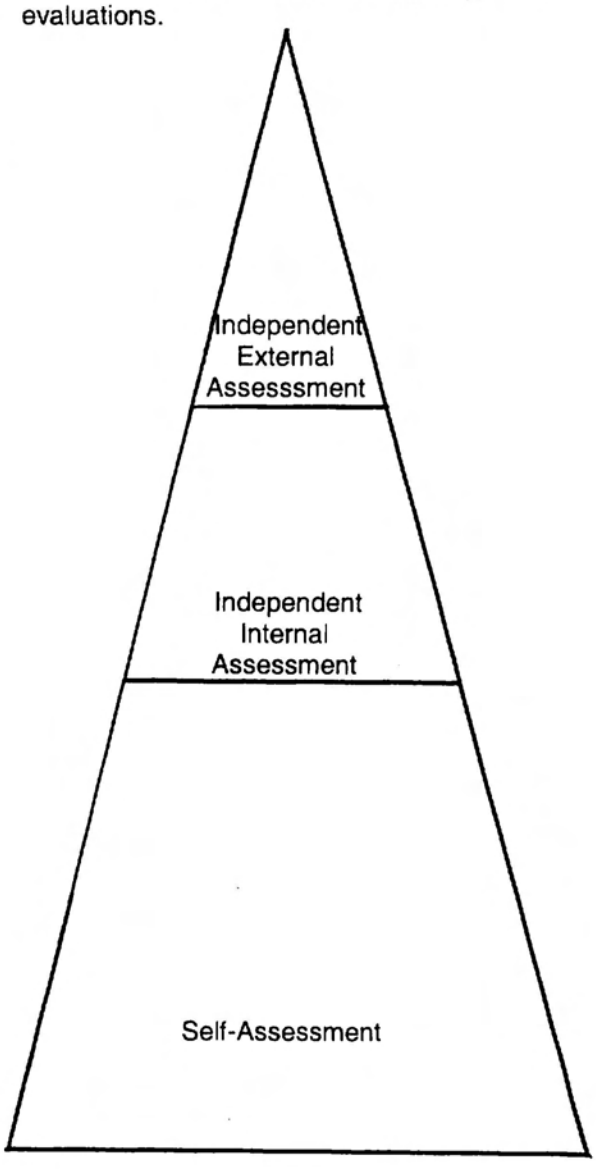
Abstract

Ontario Power Generation Nuclear Power Plants are striving to bring their performance to a level comparable with the best performing plants in the world. This paper will discuss the role of independent internal assessment in this endeavor with a particular focus on maintenance activities. The independent internal assessment program is executed by the Plant Performance Assessment groups. These groups have a potential to significantly contribute to the success of the endeavor. The potential, however, has to be understood and utilized by the Maintenance Management. There are certain conditions and attributes that must be in place for the program to meet this expectation. They are discussed in the following presentation.

Presentation

Independent internal assessment (IIA) is a powerful tool that enables the management to receive a feedback on the plant performance. There are a number of feedback mechanisms the management can use, however, the independent internal assessment has specific attributes not offered by any other form of feedback.

Before we go into the details of the independent internal assessment let us examine how that process fits with other assessment modes. In the context of this presentation we will use "evaluation " as a general term that includes all possible forms of assessments. So called "Evaluation Triangle" presented below shows the hierarchy of evaluations and gives a quantitative share of the three basic types of evaluations.



The picture suggests a majority of evaluations and consequently a majority of weaknesses should be identified by so called self-assessment. Self-assessment is an evaluation of an activity, process or program performed by an individual or organization accountable for the work.

The author presented a paper on self-assessment to the previous CANDU Maintenance Conference in 1997. He is pleased to report that the process has been implemented at the Bruce Site and has been contributing to the improved performance of Bruce 5-8. Experience also shows that the self-assessment process has its limitations and at present will not provide a complete feedback to the management team on weaknesses in the station performance. That is why the independent internal assessment (IIA) comes into the picture.

It should be noted that is not only a good management practice to have IIA implemented, it is a requirement spelled out in the CSA Standard N286.5–95, Operations Quality Assurance for Nuclear Power Plants. The Standard mandates that independent internal assessments shall be conducted for management to determine its effectiveness in obtaining satisfactory performance. The assessments shall cover the activities for which the plant organization is responsible. The assessment frequency shall be sufficient to confirm that all requirements (as spelled out in the N286.5 Standard) continue to be met The person(s) responsible for independently assessing the effectiveness of the quality assurance shall

a) have an access to plant, personnel, work activities, documents and records as necessary to assess the program
b) Be independent of cost and schedule considerations
c) Have neither performed nor verified the activities being assessed.

The results of independent internal assessment shall be documented and reported to a level of management having breadth of responsibility to resolve any identified problems.

These requirements provide a mandatory framework for independent internal assessment. However, when the objective is to assist the management team to operate a world- class nuclear power plant, the IIA process must exhibit attributes beyond the minimum requirements specified by the Standard. It is understandable just from the fact that a world-class nuclear power plant must excel not only in the nuclear safety but also in the whole host of conventional safety and economical indicators. Experience confirms the theory that the safe plants are also economically successful plants. Successful plants are trying to push the boundaries between the different modes of assessment higher. It means that the vast majority of weaknesses is identified by self-assessment, much less by IIA and almost none by external assessments.

Now the stage is set to discuss how independent internal assessment can help the maintenance organization to perform at the world-class level.

The following list is a summary of attributes the independent internal assessment process must have to effectively support Maintenance in their effort to perform at the world-class level:

1. Independent Internal Assessment is both a corporate value and a cultural norm.
2. Maintenance Management displays a strong support for IIA.
3. There is regular and open communication between the top Maintenance Management and IIA organization.
4. Long term (i.e. three months) and short term (one month) plans of assessments are prepared and are based on inputs from various important sources.
5. Maintenance Management often requests specific assessments and accepts assessment plans prepared by IIA organization.
6. Reporting of assessment results is clear and accurate.
7. Assessment results, weaknesses in particular, are formally accepted by the top Maintenance Management.
8. Completion verification and effectiveness reviews of completed corrective actions are conducted by the IIA organization.
9. Problems identified by external assessments (i.e. World Association of Nuclear Operators, Canadian Nuclear Safety Commission, Ministry of Labour and others) are viewed and evaluated as failures of IIA (and of self-assessment).

10. The independent internal assessment organization is staffed with respected plant personnel who posses complete knowledge of maintenance field and are qualified as assessors.

Without a complete and determined support and adherence to these attributes, there will not be an effective independent internal assessment process in the Maintenance Department. This statement, indeed, can be extended to other nuclear power plant departments, i.e. Operations, Engineering, and other Support Departments.

Let's now take a look at details inherent in these ten attributes.

1. Independent Internal Assessment is Both a Corporate Value and a Cultural Norm.

If IIA is not a part of the culture then it is viewed as an impediment to work process and to improvement in general. There is not a full cooperation with the assessors and many weaknesses are identified by external evaluations.

2. Maintenance Management Displays a Strong Support for IIA.

Maintenance organization has its own "early warning" system. It is the self-assessment. However, the scope of self-assessment is limited. It is usually focused on single tasks. It is excellent in detecting weaknesses in performance of individuals but has only limited success in detecting problems with processes and programs. Maintenance Management needs a feedback from IIA to address broader issues.

3. There Is Regular and Open Communication Between the Top Maintenance Management and the IIA Organization.

IIA is usually a bearer of "bad news" which is not conducive to communication. However, the timely and effective solution to problems identified by IIA requires frequent open communication between the Maintenance Management and IIA staff. Assessment reports are formal documents and need to be supplemented with direct person to person communication.

4. Long Term and Short Term Plans of Assessments Are Prepared and Based on Trend Inputs from Various Sources.

There are many signals of a need for an assessment. The signals can come from the Canadian Nuclear Safety audits and inspections, Operating Experience program, WANO evaluations, Nuclear Oversight Committee, SCR trends, Corporate focus areas, requests form Maintenance Line Management, Performance Indicators, System Health Reports, Head Office audits, Station Performance Report, Self-assessment Program, Site Improvement Program, and Integrated Improvement Program. IIA needs to keep a track of all these signals. This is done by using so called Performance Assessment Planning Matrix. All inputs are fed into the Matrix. The Matrix is periodically updated and prioritized. It serves as a pool of assessments for the 90-Day (three months) Plan. The Plan is fairly firm for the first month and more flexible for the second and third month. However, only about 75% of actually performed assessments come from the Plan. The remaining 25% are urgent requests from the line or a reaction to new and unexpected developments.

5. Maintenance Management Often Requests Specific Assessments And Accepts Assessment Plan Prepared by IIA Organization.

Maintenance Management needs to see IIA as one of its tools that enable it to identify and deal with weaknesses of its organization.

6. Reporting of Assessment Results is Clear and Accurate.

Assessment Reports prepared by IIA organization have to be high quality documents. The extent and urgency of a problem has to be presented in a clear and convincing fashion. A need for a corrective action has to be supported by observations.

7. Assessment Results, Weaknesses in Particular, Are Accepted by the Top Maintenance Management.

A need for a corrective action can be formalized by many ways. At present,

Ontario Power Generation Nuclear is using so called Station Condition Records – SCRs. Whichever form is used, a decision that a corrective action be taken should be formally accepted by the top Maintenance Management. That step generates a commitment to effectively deal with the weakness.

8. Completion Verification and Effectiveness Reviews of Completed Corrective Actions Are Conducted by IIA Organization.

A completed corrective action is formally closed. However, an independent review of completion of the action and of its effectiveness should be done and reported back to the top Maintenance Management. The reason for this seemingly superfluous activity is that an individual or a group of employees solving the problem cannot always be impartial when it comes to the assessment of effectiveness. IIA organization with its independence and knowledge of assessment techniques is the right party for the task.

9. Problems Identified by External Assessments Are Viewed and Evaluated as Failures of IIA.

Excellent performing plants can be labeled as learning organizations. They are able to identify and solve their internal weaknesses without external interference. If, despite a well functioning internal problem identification and solution process, a new weakness is identified by an external organization/evaluation, then it is viewed as a failure of the internal process. As such, it is evaluated, lessons are learned and actions implemented to prevent recurrence.

10.IIA Is Staffed with Respected Plant Personnel Who Posses Complete Knowledge of Maintenance Area and Are Qualified as Assessors.

Capabilities of IIA staff is a link connecting a number, if not all, of the previously discussed attributes. IIA staff have to be respected for their ability to communicate effectively and for having a broad knowledge of the assessed field. Positions in IIA should be viewed as developmental positions for the top Maintenance Management positions.

This concludes the discussion of the ten essential attributes of an effective independent internal assessment. The author hopes this presentation could serve a purpose beyond this Conference. Specifically, the attributes can be used as a yard stick for developing or evaluating the success of an independent internal assessment program.

In conclusion, it is interesting to ask a question if there is any other option apart from independent internal assessment. Unless the CSA N286.5 Standard is changed some form of independent internal assessment is mandatory. The Standard is not specific as to who performs IIA. We have already heard that the well performing plants identify most of the weaknesses at the bottom of the Evaluation triangle i.e. during self-assessment activities. These activities are performed by the maintenance line management. At present, these activities are not considered as independent. To accept them as independent would require a change in interpretation of the Standard. However, an excellent performance of a nuclear power plant can be a strong argument for the change. In the mean time, we are still far from that scenario and the independent internal assessment is playing an important role in bringing nuclear plants in Ontario to world excellence.