

The experience of obsolete item identification and solution in CANDU NPPs

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1. Introduction

Design and procurement of equipment for nuclear power plant took place in late 1970's. A large number of originally installed equipment is obsolete. The manufacturer's do not support their products or have discontinued their production due to technological evolutions or lack of product demand. Lack of spares affects the performance of obsolete equipment and has a negative impact on plant safety and plant production.

A proactive approach to address obsolescence is necessary to ensure critical spares are always available when needed. This is an ongoing effort and requires a program to be in place to resolve immediate and long-term issues. A cross-functional team with adequate external exposure is needed to administer the obsolescence program.

CANDU utilities and CANDU Owners Group(COG) has taken initiatives to identify lack of equipment spares in the members' plant. The equipment replacement information collected from each CANDU nuclear power plants will be shared with the COG members and it will enhance the obsolescence database.

In this paper, I'd like to introduce the efforts to solve the obsolescence problem in the CANDU plants and some result assessed in the PointLepreau & Embalse nuclear power plants.

2. Methods and Results

2.1 Purposes

The purpose of this assessment is to assess the extent of the obsolescence problem at CANDU nuclear power plant in ten safety related systems. The assessment objectives are to identify obsolete component in the 10 systems, provide solutions where known, identify program improvement opportunities, identification of common CANDU obsolescence plant design specific obsolescence issues and identification of good practices at CANDU NPP.

The scope of the assessment covers site-specific assessment results. After obsolescence assessment is completed in most CANDU plants, a report will be issued to cover review of specific and common obsolescence issues at all CANDU plants assessed. The assessment scopes are evaluation of emerging industry experience, development of strategy that promotes pro-active actions

in dealing with obsolescence, basic subject indices(BSI) in selected systems, List of manufactures found in 10 systems, supply threat of critical ASME components, Summary of obsolescence issues in 10 systems, obsolete components with no stock in inventory, obsolescence/availability status of components in 10 system(by systems code) and obsolescence/availability status of components in 10 systems(by manufacturer/supplier).

2.2 Assessment Strategy

The Assessment schedule and planned logistics of interview process is set up; Documentation of collective knowledge of NPP staff members, Coordination of obsolescence solutions with other CANDU plants and Identification of common obsolescence problems and potential participation of other CANDU plants in their solution.

The following were considered as tools of the assessment process; List of obsolete items and their replacements from other CANDU plants, The NUOG obsolescence database and Experience of the assessment team members.

Figure 1 shows the schematic diagram of obsolescence identification and evaluations

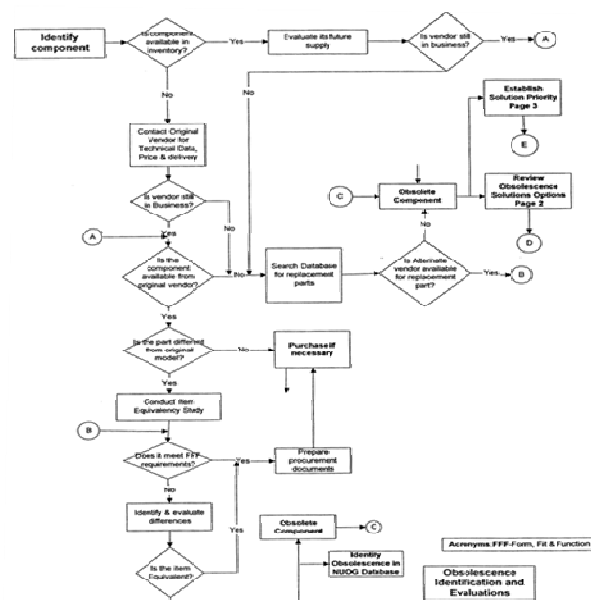


Fig. 1. schematic diagram of obsolescence identification and evaluations

Figure 2 shows the schematic diagram of obsolescence solution options

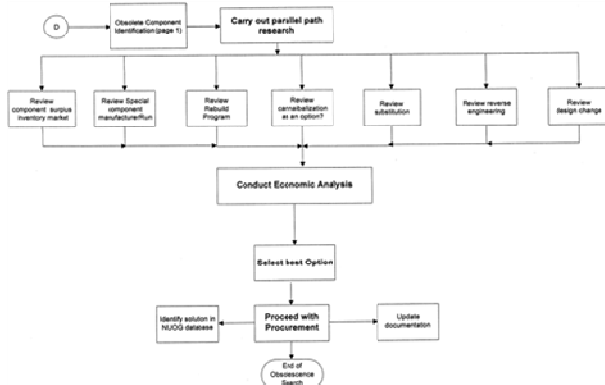


Fig. 2. the schematic diagram of obsolescence solution options

Figure 3 shows the schematic diagram of prioritization flow chart



Fig. 3. the schematic diagram of prioritization flow chart

2.3 Obsolescence Database

Obsolescence database named POMS(Proactive Obsolescence Management System, developed by COG) is very useful program to find out and solve the obsolescence problem. Several CANDU NPPs started the joint project with COG to solve the obsolescence problem at first. And then as many CANDU plants joined the COG obsolescence program, POMS become big and useful database. Figure 4 shows the POMS website picture.

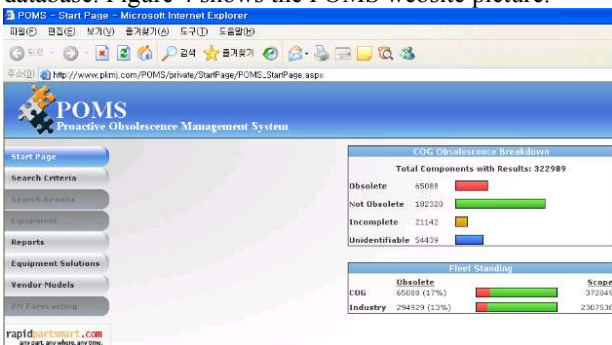


Fig. 4. POMS website picture

2.4 The result of assessment in NPPs

PointLepreau and Embalse NPP listed the manufacturers, obsolete components and available components lists as follows;

- (1) 669 manufacturers in CANDU Plants
- (2) 451 EQ items list
- (3) 186 obsolete components with no stock in inventory
- (4) 1244 available components in 10 systems

In the obsolete assessment, the assessment team mentioned as follows; The NPP staffs were aware of obsolescence issues in the plant and were willing to contribute to solve the them, The EQ project is resolving obsolescence issues as a part of the program activities, Plant management is well aware of the impact of obsolescence and is willing to address obsolescence proactively and The plant has been operation very well with the limited resources.

3. Conclusions

Solution of obsolescence problem and several experiences were introduced.

By the obsolescence assessment, the identification of obsolete component in the 10 important systems, provision of solutions to solve the problems, suggestion for program improvement opportunities, identification of common CANDU obsolescence plant design specific obsolescence issues and identification of good practices at PointLepreau and Embalse NPP were assessed.

The assessment method was obsolescence identification and evaluations, obsolescence solution and prioritization using logical diagram and obsolescence database.

The obsolescence database, POMS was developed to share obsolete items information for several CANDU NPPs has now been increased in size and contained enormous amount of information. The database gave important informations in the obsolescence assessment.

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