

IMPROVING PERFORMANCE AT POINT LEPREAU

By

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ABSTRACT

Point Lepreau had an excellent operating record between the time it began operation in late 1982 up to the 1995 SLAR outage. However a series of events over the following two-year period led to a number of forced outages of significant duration, and called into question a number of underlying processes and the overall effectiveness of the organization. This resulted in the need for an intensive review of all aspects of station operation and an ensuing program to improve processes and performance.

This paper provides an update on the various activities that have taken place at Point Lepreau over the past few years in order to return the station to excellence. This covers not only the changes to the technical and managerial processes, but also on the processes that were used to deal with transition and change with station staff.

With the completion of the Performance Improvement Program (PIP) this year, the station has introduced a business planning process, which will ensure that resources are applied to the appropriate areas in the future. Although it is difficult to turn performance around over night, there are encouraging signs that performance is improving and the future for the station is optimistic.

2. INTRODUCTION

As part of the corporate mission of debt reduction which began in the early 1990's, station resources failed to match the increasing demand. In essence there was a corporate failure to understand the mission required for lifetime management of a nuclear station. The result was that the additional effort required to deal with emerging technical and ageing issues exceeded the capability of available resources to do quality work within allocated times.

In addition, the early success of Point Lepreau did not challenge the programs and policies. Furthermore, many of the basic oversight programs such as Self-Assessment, Peer Reviews, and use of relevant leading Performance Indicators were lacking. Consequently there was a false sense of security. This only became evident when plant mid-life challenges emerged.

In 1996, Point Lepreau had its first ever peer review by WANO (World Association of Nuclear Operators). Based on the results of this review and the issues raised by station management and the Atomic Energy Control Board, it was clear that there were a number of underlying problems at the station and that corrective action was required on an urgent basis.

As outlined in our paper presented at the 1998 CNS Conference (Reference 1), a number of immediate actions were undertaken. One of first was the establishment of the

position of Vice President – Nuclear so that there was a direct line of reporting from the station to the President. Secondly, there was a significant increase in the resources allocated to the station. Thirdly, there were corrective action plans put in place to address the known deficiencies. Finally, a Performance Improvement Program was introduced to identify more fundamental improvements that were required and to prioritize these and put the necessary plans into action.

3. Performance Improvement Program

In developing our overall performance improvement program we initially identified in excess of 40 projects. These projects were identified based on the following:

- our own internal review
- areas for improvement from a full peer assessment by WANO
- Regulatory staff observations

The plan involved the establishment of a small performance improvement group to budget, plan, schedule, monitor, initiate corrective action as appropriate, and report progress. The actual work required to implement the various projects was the responsibility of the line organization. Each project had an assigned member of the line organization responsible to progress the project such that schedule milestones were achieved.

A steering committee comprising senior corporate staff members, the performance improvement group leader, and the station line managers (including the station manager) meet initially on a two week frequency to address any problems, establish new or reinforce existing priorities, ensure line organization's continued commitment to priority projects and to ensure continued corporate focus.

We initially attempted to address all projects, only being limited by the availability of qualified staff. We took this rigorous approach realizing that it was a commitment to the regulator.

The effort required to progress many fronts at once quickly became a concern. Equally, we were concerned that our program was not independently verified.

In June of 1997 we had WANO do an independent assessment to verify the adequacy and scope of our proposed improvement program. The assessment involved

a review of recent unplanned events and a series of one-on-one and group interviews with staff from all station work groups. They concluded that our proposed improvement program would address our performance problems. However, they cautioned us that success would be unlikely unless we narrowed our focus to several key initiatives.

Concurrently, a second group of external advisors (a group of three senior executives commissioned by our president to provide independent advice on our approach and the likely expectations of a regulator) also recommended that success would be greatly enhanced if we limited our focus to less than five issues.

The feedback from both of the above groups prompted us to act immediately. From an earlier assessment of unplanned events, we determined that human performance was the most common unplanned event causal factor. Greater than 50% of the events examined had some element of human failure. This is consistent with findings documented in other published reports. This finding prompted our decision to focus our program on three human performance initiatives:

- Conduct of work
- Safety culture awareness
- Supervisory effectiveness & Performance Management

Other projects were continued in the background, but not at the expense of progressing projects supporting the focal issues.

Focusing on these issues involved developing documentation, promotional campaigns, and extensive staff training followed by evaluation to assure that the desired effect was achieved. In addition extensive effort was placed on updating staff on the need for change and for improved performance and on describing the various improvement initiatives.

By the summer of 1998, the project phase for the majority of the focal projects were complete. The strategy for the next year and a half was to maintain the emphasis on human performance, while at the same time broaden the focus to include the next most important areas requiring improvement. Following the development of selection criteria, 17 projects were identified. These were then categorized into four focal areas of which 10 projects were designated Category A (the highest priority), while the

remaining 7 were assigned to group B. Regular progress reports were provided to AECB staff on quarterly basis, and to the AECB Board on a semi annual basis. A list of these projects is provided in Appendix I.

The performance improvement program was the most important and comprehensive program ever undertaken at Point Lepreau. Aspects that made the program a challenge included:

- a shift from the historic focus on technical issues to those associated with human performance, work processes and staff practices
- it was initiated in parallel with our attempt to hire additional staff to address a large backlog of work
- it was necessary to show positive results in a timely manner

An important element of the PIP program was the need for station buy-in, communication and feedback. Part of this was accomplished via a newsletter to station staff issued on a biweekly basis. The reestablishment of the Plant Advisory Committee, which had representation from both management and the shop floor, also provided an important two way communication function.

4. Establishment of a Transition team

In early 1999, Point Lepreau had its second WANO peer review. The results indicated improvement in some areas, however the overall rate of progress was deemed too slow. In the spring of 1999 a transition team was established to help the management team in its commitment to continuous improvement, and to effectively manage significant and necessary changes. This was a dedicated team focussed on improving:

- Human performance
- Organizational effectiveness
- Station processes

The role of the transition team in supporting the station management team is to:

- Bring consistent methods in improving processes and managing change
- Prevent parallel improvement initiatives from interfering with each other
- Ensure that the changes implemented do not compromise the safe operation of the station

- Work on significant changes that require a systematic approach to identifying and implementing improvements.

Approach used in a given project is as follows:

- Management team approves the project
- One or more member of the management team is the sponsor, responsible for championing the development, implementation and monitoring progress
- A Project team is established consisting of one or more transition team members as facilitators, support from consultant groups, and station staff representing impacted groups
- The current state is established
- The group determines how work can be done more effectively
- The process improvement is designed (along with the development of change management strategies)
- The change is piloted
- The change is implemented by the line organization
- The effectiveness of the change is measured
- Follow-up is provided if required

Two examples of process improvement projects completed to date involving the transition team are the revisions to the work plan and work permit processes. The work plan process was significantly streamlined while ensuring that the necessary safety and quality elements remained in place. In the case of work permits, a number of activities that previously required permits were eliminated and the requirement to surrender the permit at the end of a shift was eliminated.

Examples of improvement in organizational effectiveness were the creation of dedicated groups to address: outage planning, operational documentation, and station refurbishment. The position of facilities manager was also created to administer the areas of security, service maintenance and administration support. This allowed the other managers to concentrate on their core activities.

Another program that was supported by the transition team was Vision and Interpersonal skills (VIPS) training.

5. Vision and Interpersonal skills training

One of the critical aspects of station recovery is the importance of getting station staff to understand and accept the need for change, while at the same time ensure that

they retain their dignity and self-respect. One of the ways in which this was done was to put all station staff through a 3-day training seminar. The objectives of the seminar were to:

- Create the proper environment for individual participation and learning
- Clearly and effectively establish the need for change
- Develop interpersonal skills through experiences and insights, as a foundation for leadership and teamwork
- Develop individual understanding of, alignment with, and commitment of the Point Lepreau vision
- Prepare staff for future actions with their own work groups and functional leaders
- Create greater alignment and momentum towards transformation at Point Lepreau
- Develop process of individual feedback in a positive and constructive manner.

An additional workshop on world class performance awareness is planned for all plant staff at the conclusion of VIPS training. This will communicate the link between having a successfully decision on station refurbishment with the need for demonstrated good performance against the WANO performance objectives and the areas for station improvement identified by WANO.

6. Vision

To ensure proper alignment of station staff an overall Vision statement was prepared. This was followed by the creation of Purpose and Mission statements and establishment of Core Values.

- Our Vision is: *Quality today for an assured future*
- Our Purpose is: *to enrich the lives of those we serve through the energy of our people and our technology*
- Our Mission is: *to within the next decade, together we will refurbish and operate Point Lepreau in a world-class way.*

Our core values and vivid description are provided in Appendix II.

7. Management Commitments

One of the projects of the transition team was to clarify the roles, responsibilities and accountabilities within the station. Activities at the station were mapped into the Nuclear Energy Institute process model. As a logical extension to this, the management group accepted

responsibility for achieving specific results in a specified time frame. For each commitment, a “charter was produced which specified the problem statement, scope, objectives (expected outcomes), benefits, as well as costs/risks and potential barriers. Approval of station charters that align with station goals is the method for introducing projects into the station business planning process.

8. Business planning

Beginning in the spring of 2000, Point Lepreau introduced a business planning process. This will allow us to better relate our business priorities to station resources, taking into account business risk assessment and allowing us to apply resources where they are most valuable.

The business plan identified four goal areas:

- **Safety / quality**
 - Achieve and maintain a strong safety culture
 - Maintain a high standard of personal, operational and public safety
 - Control the impact on the natural environment
 - Maintain capability to respond to station contingencies
- **Generation**
 - Complete outages as planned
 - Operate and maintain the station to ensure a consistent and predictable capacity factor
 - Retain the station operating Licence
 - Operate and maintain the plant equipment to achieve a successful refurbishment decision
- **Organizational effectiveness**
 - Promote a culture which encourages behavior consistent with our core values
 - Evolve our organizational structure to support efficient and effective operation
 - Attract, develop and retain people with the competencies we need now and in the future
 - Establish clear roles and responsibilities for all staff
 - Maintain the confidence of the AECB, WANO, NB Power board of directors, and the communities we serve.
- **Cost / productivity / profitability**
 - Effectively plan, prioritize and manage our costs for OM&A, capital projects and outages

- Maintain a consistent and predictable capacity factor
- Evolve our business processes to support efficient and effective operation.

The first plan was introduced in April of 2000. It incorporated the Phase II manager commitments; the WANO identified areas for improvement (AFI's) and any carry-on PIP projects. The plan is being actively managed on a monthly basis. This will include assessment of work accomplished as well as financial management compared to required goals. Corrective actions are taken when necessary. The plan will be updated yearly and is integrally linked to the station budget process.

9. Summary

Since encountering difficulties in performance starting in the mid 1990's, NB Power has made a number of fundamental changes in how it conducts business at Point

Lepreau. These changes were initially introduced through the Performance Improvement program, and now are being administered through a business planning process which encompasses risk assessment and ensures that station resources are aligned with the high level goals.

Improvements in areas of human performance, organizational effectiveness and station processes are aided by the use of a dedicated transition team. The need for change and continuous improvement has been communicated to all station staff and that they understand that they must take ownership of change. Care was taken so that this message was delivered in a manner such that the dignity and respect for the individual was respected.

The application of continuous improvement through programs such as use of leading performance indicators, corrective action program, self-assessment program and peer reviews are now part of the standard way of doing business.

While it takes time to implement significant change into an organization and to see results, station staff and management are confident that the goals will be achieved.

Reference

Paper presented at the 1998 CNS Conference in Toronto, Canada, "Improving Performance in a Competitive Environment", by R. M. White, J. J. McCarthy, W. S. Pilkington and P. D. Thompson.

APPENDIX I - List of PIP Projects

CATEGORY A

- Supervisory effectiveness
- Improvement to work control processes
- Reduce maintenance backlog
- Reduce backlog of corrective actions
- Improve progress on AECB Action Items
- Implement a Problem Identification and corrective action program
- Introduce a work management system for technical work
- Implement Plant life management program
- Develop a strategic plan
- Implement a self assessment program

CATEGORY B

- Produce interpretation document for OP&P
- Follow-up safety culture training and create human factors program
- Establish a configuration assurance program
- Progress improvement in operations documentation
- Improve the design change process
- Develop a succession plan
- Introduce a comprehensive training program for all work groups

APPENDIX II – Core Values & Vivid Description

Our core values are:

Safety First

We recognize and take seriously the unique safety requirements of the nuclear core. We are committed to employee and public safety.

Pursuit of Excellence

We strive to achieve world class standards through continuous improvement.

Openness

We readily consider the views of others, and willingly and sincerely express ours. We share knowledge and information for the benefit of all.

Respect for the individual

We value our people, trust them, support their development, and acknowledge their needs.

Teamwork

As individuals, we unite to achieve shared goals.

Commitment

We accept ownership and deliver on our promises.

Integrity

Our thought, words and actions are founded on honesty, trustworthiness, and accountability.

Our Vivid Description:

We are working with renewed vigor and a sense of accomplishment

We are each where we can best contribute and love it!

We each make a difference

We trust and are trusted

Our processes are as good as our people

We and our families are proud to say we work at Lepreau

Kids think working at Point Lepreau is cool

People travel from around the world to learn from our success

Our customers feel we provide real value

Our community is confident in us