LEADERSHIP IN THE CONTROL ROOM

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Abstract

This paper discusses the importance of leadership within the control rooms at nuclear power facilities. The leadership capability of control room staff has a significant influence over the improvement of human performance and the development of an "event free" culture within the business. The development of leadership competency in the control room must be an important part of any nuclear power utility business improvement plan.

Leadership in the Control Room

Nuclear Power Plant Operators the world over are striving for improved performance. Historically the industry has made significant improvements in equipment reliability such that the plant now operates more reliably with longer time intervals between transients. During this period human error became a larger and larger contributor to events. Gradually the nuclear power industry, along with other safety critical industries, recognised that the behaviour of it's employees was an important factor in performance improvement, and the term "Human Performance" became a significant area for focus..

The collective behaviours of plant staff are the visible aspects of the "culture" within the plant. The importance of culture in the nuclear power industry has been brought to the fore after analysis of the Chernobyl accident where the investigators found that "the culture was unsafe". This led to industry wide discussion on the concept of safety culture and the recognition that the culture within the organisation can be an important contributor to events both inside and outside of the industry (e.g. Columbia; Challenger; Davis Besse; Herald Free Enterprise).

The behaviour of employees is influenced by the beliefs and attitudes of the employees, and these beliefs and attitudes are in turn influenced by leadership behaviour within the organisation. If a safe culture can be established, the culture of an organisation can act to minimise the chance that an error will occur, and help prevent an error from becoming an event.

Some important aspects of a safety culture include good communication, a rigorous approach to operation which includes personal error prevention behaviour and rigorous use of procedures and checklists, and a questioning attitude[1]. All of these attributes are human and in many cases they are contrary to usual human behaviour. For example self checking is a behaviour where a person is trained to pause and check what is about to happen prior to initiating an action. This is contrary to the natural human tendency to perform actions almost automatically, especially the more familiar. Another important example is that of a questioning attitude. Staff within the nuclear power industry are expected to raise concerns and ask questions before starting any activity. This behaviour has proven its worth many times in identifying issues prior to an event occurring. However the asking of a lot of questions, especially questions perceived as trivial, is looked down upon in society as being tine wasting or even a sign of weakness. In some cultures the questioning attitude is particularly difficult.

Establishing a safety culture within an organisation has proven to be a difficult challenge. In essence you have to get every individual in the organisation to behave in a consistent and reliable way, even when you, the manager, are not looking.

Mandating required behaviours in an autocratic way (command and control style) can bring short term success. This approach takes huge amounts of senior manager energy

and the reality is that when the manager is not looking the staff will revert back to their usual behaviour.

An alternative approach is to engage the staff such that that they understand the required behaviours and have the opportunity to practice the behaviours on the job, with ongoing coaching and reinforcement of their line manager. If line managers are persistent, insisting on compliance with standards at all times, and continue to provide immediate feedback over an extended period of time, then gradually the required behaviours will become embedded in the culture of the organisation.

This approach also takes a lot of management energy, but, in the long term the benefits of improved performance will show in terms of better forced outage rates and improved safety performance. This will help to reinforce the required behaviour patters. However, in the short term, it is a significant leadership challenge to get staff to change behaviours, especially when they perceive the work as routine and the risk is low. The advantage of this approach is that it is much more likely to be self sustaining in the long term, but it does require significant leadership skill to communicate, coach, monitor and reinforce the required behaviours.

The need for strong leadership in Nuclear Power Plant Control Rooms is of particular importance. As Zack Pate said in his speech at the 1995 INPO CEO Conference, “the control room is the place where you control the plant, or lose control of the plant”. He goes on to reinforce that the safest plants are the ones with the best shift managers.

In addition the impact of strong leadership in the control room can have a much broader influence over the success of the business as a whole. Plant staff from all parts of the organisation sees the control room as a pretty important place. Everyone who works in there has been highly trained over many years. So if the folks in the control room do things in a certain way it is more likely the rest of the employees will do things in the same way. This can be positive or negative depending, for example, on whether the control room staff are enacting the company standards, or if they are enacting their own version of the standard. The reality is that the control room has a significant influence over the culture in the business.

So what have we done to prepare our control room staff for this important leadership role?

Traditionally the nuclear industry has placed a lot of emphasis on technical training. Staff entering control room training programs were selected based on a strong technical performance, and the training program was very heavily based on the knowledge and skills required to operate the plant. Given the complexity of the plant, and the possible far reaching consequences of plant events, this emphasis is justified and will always be a key part of the life of any prospective control room staff.

Recognising that strong leadership is very desirable in the control room many organisations have incorporated leadership criteria into the selection process for control

room operators and shift management. These criteria are used to ensure candidates for leadership positions in the control room have the potential for enacting the leadership competencies required.

However, once the candidates are selected to an authorisation training program they spend several years completing technical training with very little "leadership" training or coaching. This has resulted in some control room shift supervisors (CRSS) feeling very uncomfortable with the leadership aspects of their role when first appointed to a CRSS position. To correct this it is important to supplement the technical training with leadership training such that, as a minimum, the new CRSS graduate is capable of task assignment to high standards (pre-job briefing) and has some skill in observing and coaching staff against operations standards. Ideally CRSS candidates should attend a structured leadership training program during their training period, or at least attend the full leadership training program in the first few months after qualifying as a CRSS.

Once control room leaders have been given the appropriate training they should be able to make a good start at applying their leadership skill to manage crew activities to the required standard, and provide reinforcement and coaching to staff such that the required behaviours are consistently and regularly reinforced. However, in reality, if the leaders themselves are not coached then their skill as leaders will not improve, or in the worse case, their leadership behaviours will deteriorate to a "minimum effort" level. This makes the role of more senior operations managers, both on-shift and off shift, to be very important in achieving sustained leadership performance and in turn, continually improving operating crew performance.

At Bruce Power we have recently instituted on-the -job leadership coaching in the form of "paired observations". The concept of field observation and coaching of front line workers has been around in the nuclear power industry for some time. The paired observation is an enhancement of the FO&C process where a supervisor is accompanied by the next level of manager to do an observation. The supervisor completes the observation as normal and gives feedback to the observed worker/s. Then in turn the manager will give feedback to the supervisor. Two very important elements of the feedback are (1) the development of observation and coaching skill, and (2) the confirmation that the supervisor is reinforcing the standards to the required level. The paired observation is proving to be a very powerful tool to assess and improve the performance of line managers at all levels, both in the control room and in other line organisations.

Finally the overall success of control room leadership requires ongoing support from the operations manager and a management framework that holds the crew leaders accountable for their own performance, the performance of their crew, and the support of company objectives, processes and plans.

It is useful to think of the shift manager (SM) role in terms of the simple illustration in Appendix B. The SM has always had an important role in "oversight" of the day to day operation of the plant from a technical viewpoint, ensuring the plant was operated within

licence conditions and approving all key activities. As we better understood the impact of human behaviour on performance the SM has had to take on a role of crew leader, a role which is accountable for the collective performance of the crew. Ultimately, to achieve high levels of business performance the SM must satisfy a role as a member of the management team. In other words, the SM is the operations manager's representative on shift. In order to do this the SM must understand the business plan, all the key business processes, be familiar with the company objectives, and have sufficient context about the business as a whole to provide the appropriate communications and reinforcements to his/her crew.

At Bruce Power we are supporting our managers on shift by
-regular meetings with the VP Operations
-personal performance plans which cover all aspects of the SM role
-crew performance scorecard process which is used to communicate crew performance and the relationship to company performance and objectives
-company communication material such as videos and newsletters
-observation and coaching with senior managers
-individual leadership development using industry mentors
-continuing leadership training workshops with the rest of plant management
-operations communications material ranging from briefing cards to day long workshops which are developed by support organisation for delivery by the SM.

In summary, recognising the importance of leadership in the control room of a nuclear power plant, it is important to support that leadership by activities in all of the areas of;-

- Leadership Selection
- Leadership Training
- Leadership Coaching

and by supporting Control Room Leadership as part of the Management Team. Bruce Power is making improvements in all of these areas and sees this activity as an important part of the overall performance improvement plan.

References

1 INSAG 4 IAEA "Safety Culture"
2 Zack Pate "The Control Room" Speech 1995 INPO CEO Conference

Appendix A **Bruce Power Leadership Competencies**

- **Safety**
  Demonstrates the ability to perform safety leadership roles as defined by OHSA and consistent with Bruce Power expectations.

- **Accountability**
  Demonstrates and communicates a high level of ownership and commitment to achieving results and commitment to providing a safe work environment for their team.

- **Coaching**
  Encourages employee participation and ensures each team member receives constructive and motivational feedback; helps others to maximize performance and eliminate potential loss.

- **Communicating**
  Provides timely, appropriate and useful information. Seeks information from others to clarify understanding.

- **Composure**
  Responds constructively to emotional situations, high pressure situations and conflict.

- **Decision Making**
  Assesses the importance, urgency and safety implications and business risks associated with each situation and takes actions which are timely and in the best interests of the team members and Bruce Power.

- **Innovating**
  Recognizes and continuously encourages better and safer ways of accomplishing results.

- **Integrity**
  Achieves a high level of trust in relationships.

- **Work Program Management**
  Uses the goals established for the team to organize work, determine and adjust priorities, manage various resources, expedite safe work execution and measure results.

- **Business Contribution**
  Understands the direction of the business and how the team contributes to the success of Bruce Power.

- **Teamwork**
  Involves others in reaching goals, resolving problems, making decisions and eliminating loss.

Appendix B **Shift Manager Leadership Model**