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Managing human resources in the nuclear power industry: Lessons learned

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FOREWORD

This report is intended for senior and middle level managers in nuclear operating organizations. Its objectives are to facilitate the recognition of priority issues with respect to managing human resources, and to provide pragmatic ideas regarding improvements. The human resource issues addressed in this report, if not managed effectively, can result in significant performance problems at nuclear power plants.

About 10 years ago the IAEA initiated an effort to identify such management issues and to find effective practices to deal with them. This information was provided in IAEA Technical Reports Series No. 369, Management for Excellence in Nuclear Power Plant Performance — A Manual (1994). This report builds upon the information in the subject manual. In the past 10 years there have been significant changes in the nuclear power industry resulting primarily from more competitive energy markets and privatization of nuclear power plant operating organizations. In general, the industry has responded positively to these changes, as indicated by IAEA/WANO performance indicators that show both improved operational and safety performance. This report provides examples of approaches to managing human resources that have been effective in responding to these changes.

This report was produced through a series of meetings, where meeting participants were asked to share information regarding effective practices in their organizations with respect to managing human resources. The information provided through these meetings was supplemented with good practices in this area identified through IAEA Operational Safety Review Teams (OSARTs) conducted during the past 10 years.

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EDITORIAL NOTE

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CONTENTS

1. INTRODUCTION

1.1. BACKGROUND

The concept for this report came from two sources: IAEA Technical Reports Series No. 369*, Management for Excellence in Nuclear Power Plant Performance — A Manual,* 1994, and the IAEA Technical Working Group on Training and Qualification of Nuclear Power Plant Personnel (TWG-T&Q). TRS No. 369 provides, in a pragmatic way, information on effective management practices for excellence in NPP performance. The TWG-T&Q recommended that the Agency develop a report that would integrate the training and qualification function into the overall process of managing human resources in an NPP operating organization.

1.2. OBJECTIVES

The objectives of this report are to:

(1) Make middle and senior level NPP operating organization managers aware of the most significant issues in the industry with respect to managing human resources.
(2) Provide typical symptoms for each of these issues, which may indicate significant performance problems.
(3) Assist in the solution of performance problems through the identification of practices that NPP operating organizations have found effective in addressing these challenges.

1.3. SCOPE AND DEVELOPMENT OF THIS REPORT

The issues found to be most prevalent in managing human resources for NPP operating organizations are identified in this report. This report provides a means of determining whether such issues are relevant to an organization through identification of typical symptoms and desirable attributes associated with the issue. This report also identifies effective practices to address such performance issues. These are practices that have been used effectively by NPP operating organizations. These effective practices do not include theoretical considerations or justification. There are ample textbooks and other materials addressing such theories, some of which are identified in the bibliography.

This report is primarily directed to the management of operating nuclear power plants. However, the practices presented can potentially also be useful to other nuclear facility organizations

The management issues addressed in TRS No. 369 were used as the starting point for the development of this report. Then management and performance issues documented by the IAEA, WANO, regulatory authorities and NPP operating organizations during the past 10 years (since the development of TRS No. 369) were reviewed, with particular focus on the human performance aspect of the issues. On the basis of this review, six generic issues regarding management of human resources in the nuclear power industry were identified. They are provided in Section 2.

Section 2 discusses in some detail these six management issues. Symptoms that may indicate shortcomings related to each issue are provided followed by attributes indicating effective management. The existence of these symptoms in an NPP operating organization should alert management to the possibility of significant problems in performance.

Section 3 identifies a number of effective practices that deal with each management issue. The practices are described further in the annexes. These practices are based upon real examples that have been successfully applied in NPP operating organizations to achieve performance objectives. Details have been intentionally omitted in order to focus attention on the essentials.

1.4. HOW TO USE THIS REPORT

Managers should assess the situation in their organization with regard to the symptoms presented. If sufficient concerns are raised regarding a particular issue, a review of the effective practices identified in the report might suggest ways to deal with the issue. For those interested in more information, the organizations responsible for these practices are identified in Section 3.

2. DISCUSSION OF KEY ISSUES RELATED TO EFFECTIVE MANAGEMENT OF HUMAN RESOURCES

Through the process described in Section 1.3, the following emerged as the most important and common issues in NPP operating organizations regarding management of human resources. They include the need to:

(1) effectively organize work activities and designate responsibilities and authorities.
(2) effectively train and develop personnel for their assigned responsibilities.
(3) establish clear performance expectations and assess the extent to which these expectations are achieved.
(4) provide effective incentives to achieve performance expectations.
(5) anticipate the long term human resource and knowledge management needs of the organization.
(6) establish effective communication methods.

The remainder of this section is devoted to a review of the management issues listed above. Specifically:

- An overview is provided of each issue.
- Common symptoms that signal the existence of problems related to this issue are identified.
- The attributes indicating effective management of the issue are described.

MANAGEMENT ISSUE 1: THE NEED TO EFFECTIVELY ORGANIZE WORK ACTIVITIES AND DESIGNATE RESPONSIBILITIES AND AUTHORITIES

In order for an organization to effectively achieve its goals, responsibilities, authorities, and interfaces for work activities must be clearly defined. These characteristics become even more important when significant changes are made in processes or organizational structures, such as have been the case in many nuclear operating organizations during the past 10 years.

Symptoms of problems related to this issue	Attributes of effective management related to this issue
• Managers don't use their time well; they are always in meetings. Excessive demands are made on managers, without effective prioritization, diverting them from their primary responsibilities for planning, directing and assessing their organizational unit's performance. • Managers are routinely involved in the technical details of problems/issues, rather than leaving these to technical specialists and focusing their efforts on planning and organizing the work of their organizational units. • Delegation of authority is very limited. Even decisions with little or no safety or operational impact or financial consequences are made at senior management levels. • No one person is held accountable for results. • Assignments are made informally rather than in detail in writing. • Work is not being done because no has been specifically assigned the responsibility, or the assignment was not understood. • Multiple signatures are required with respect to authorization or verification of work without clear indication of what these signatures mean, thus responsibilities are diluted. • There are routinely disagreements between organizational units as to limits of responsibility and authority. Interface agreements are non-existent, out of date, or not adhered to. • There is a lack of cooperation among organizational units. • Work is routinely delayed due to lack of work coordination and co-operation.	• There is a clear and well-supported written policy to ensure that meetings are an effective management tool rather than unnecessary burdens. • Clear statements of responsibility and organizational interfaces are provided in operating organization documents wherein overlaps and ambiguities are avoided. • Each employee (or at least each job position) has a job description that defines responsibilities, authorities and interfaces. • There is one individual in charge of each process/activity; everyone involved in the process/activity is aware of this fact. This individual is empowered with the authority to carry out these responsibilities. • Tasks are assigned in writing, including identification of required procedures and standards. Standards are reinforced through pre-job briefings and post-job debriefs. • The responsibilities for authorization and verification signatures are clearly defined, and the number of signatures is kept to the minimum needed to ensure quality. • Each organizational unit has identified its customers and suppliers, and has clearly defined relationships with both. • The work control system ensures that work is planned and implemented in a safe, efficient and effective way. • Benchmarking is used effectively by the organization as a tool to learn from the experience of others. • The concept of "internal customers" is used to encourage co-operation and co-ordination among organizational units.

MANAGEMENT ISSUE 2: THE NEED TO EFFECTIVELY TRAIN AND DEVELOP PERSONNEL FOR THEIR ASSIGNED RESPONSIBILITIES

For many NPP operating organizations, the combination of a need to replace a retiring workforce that was trained through commissioning the plant, along with new competencies needed to work effectively in more competitive energy markets, has created significant challenges. In these situations, new training and development programmes are needed as management tools to assist in the implementation of organizational change.

Symptoms of problems related to this issue	Attributes of effective management related to this issue
• Training programs aren't integrated with other organizational efforts so as to achieve the organization's human performance expectations. Training is considered by line managers as a burden rather than as a management tool to improve performance. • The selection and recruitment system is not based on job requirements resulting in some people not being capable of achieving training objectives (and job performance objectives). • Training programs aren't aligned with the organization's business goals. • Trainers demonstrate little or no concern for or knowledge of problems/issues their trainees will face on the job. • Line managers blame the training organization for the human performance shortcomings in the people in their organizations. There is evidence that newcomers have inadequate or insufficient training to do their jobs. Line organizations don't feel that training is their responsibility. • The value of the training function to the organization is reduced when corrective actions resulting from identified weaknesses focus on remedial training for individuals involved in the event rather than on identifying and correcting weaknesses in organizational systems that allowed these events to occur. • Experienced people don't feel that it is their responsibility to train newcomers. They feel that they learned their jobs on their own and that newcomers should do the same.	• Human performance technology is used as an effective tool for improvement. • Trainers focus on identified weaknesses in plant performance when identifying training needs, and in implementing SAT-based training. Needs analysis ensures that appropriate corrective actions are identified, which often include a combination of training and improvements in organizational systems. • The organization works with trade unions and professional organizations to broaden the skills of employees to improve the efficiency and effectiveness of the plant workforce. • Tools such as mentoring, leadership training, job rotation, and internships are used to prepare plant personnel for new responsibilities and challenges. • The training system makes appropriate use of information technology and industry lessons learned. • Succession planning is used as a tool to transfer knowledge from experienced employees (who are about to retire) and their replacements. • Training programmes and schedules support the needs of the organization; operating experience is a key input to training content. • Refresher training is scheduled and conducted systematically for NPP personnel. The content of refresher training is derived from the need to enhance job performance.

MANAGEMENT ISSUE 3: THE NEED TO ESTABLISH CLEAR PERFORMANCE EXPECTATIONS AND ASSESS THE EXTENT TO WHICH THESE EXPECTATIONS ARE ACHIEVED

Experience has shown that without clear expectations performance will generally decline until a level is reached at which some negative consequences occur. A similar result can be expected if clear expectations are established without monitoring/assessment of performance based upon these standards. The opposite is also the case, through clearly communicating expectations and then providing visible assessment of performance based upon these standards, performance improvements can be expected.

Symptoms of problems related to this issue	Attributes of effective management related to this issue
• Managers and supervisors rarely observe performance of their personnel in the workplace. When they do they don't use this opportunity to reinforce performance expectations. • Plant personnel don't know what the expected standards are for work performance. • Assessment of personnel performance is not based upon job performance (or there is no formal individual performance appraisal system). • There is a disconnect between managers and supervisors expectations regarding job performance standards/expectations. • Performance problems keep repeating. NPP personnel are busy with re-work and crisis management. The organization doesn't learn from its mistakes; the root causes of problems are not identified and corrected. Blame for performance weaknesses is assigned to individuals rather than assessing what weaknesses in the human performance system permitted the error/mistake to occur. • Many closed-out corrective actions (based upon previous assessments) are judged to be inadequate during subsequent independent assessments. • The goals of the organization and those of individual employees are not consistent.	• Managers, supervisors and peers are clear about the desired level of performance, and about the competencies needed to achieve this level of performance. • Line managers at all levels routinely observe the performance of activities in their organizational units. • An effective personnel performance appraisal system is in place that includes two-way communication about both individual goals and ambitions, and an agreed upon self-development programme. • Participation in industry groups and benchmarking is routinely done. • Effective, systematic self-assessment and independent assessment programmes are in place; they complement one another. • Nuclear safety, operational performance and other organizational objectives are used as the primary criteria for assessing performance. • Individuals in all parts of the organization, and at all levels have clear goals and objectives that are linked to those of the operating organization. • Senior and middle level managers are personally involved in the corrective action process. There is follow-up on incomplete, ineffective or delayed actions to ensure that they are corrected.

MANAGEMENT ISSUE 4: THE NEED TO PROVIDE EFFECTIVE INCENTIVES TO ACHIEVE PERFORMANCE EXPECTATIONS

It is clear that high standards for nuclear safety must be maintained by all operating organizations. An emerging need for many operating organizations has been to integrate these nuclear safety goals and objectives into business plans along with operational and financial performance, and then to effectively convey these integrated plans to all levels of the organization. Today's competitive energy markets make it more important than ever that all levels share the same objectives, and have appropriate incentives to help achieve these objectives.

Symptoms of problems related to this issue	Attributes of effective management related to this issue
• Compensation is not felt by employees to be based upon the value of the job to the organization. • Problems reported in the workplace have not been acted upon (or no feedback was provided as to why no action was taken); as a result employees have stopped reporting problems. • Rewards for good performance are inadequate (both group and individual performance. • Most employees do not perceive the performance appraisal system as being fair or objective. • Younger personnel are not motivated by the incentives the organization is providing. • People are disinterested in the organization and its goals. They don't feel that the organization values their contribution. • There are indications that individuals have attempted to cover up their mistakes or those of their peers. • There is a tendency in the organization to blame outsiders (e.g., designers, manufacturers, regulators, vendors) for the inability to deal with its fundamental problems. • People expect the QA/QC department to measure quality and tell them when there is a problem, rather than modern thinking that everyone is responsible for monitoring the quality of their work. • There is a belief that changes are only needed because the regulator or some other external organization requires them. • Line managers fail to enthuse staff toward challenging goals. They have a very limited understanding of human behavior/motivation.	• Performance expectations are clearly elaborated to everyone in the organization. • Reliable and consistent methods for individual performance monitoring and feedback are effectively used in the organization. • Performance weaknesses (and errors) are routinely analyzed together with the people involved in order to understand what happened, identify misunderstandings, and share lessons learned. Emphasis is on improving the system rather than on punishing individuals (except for willful misconduct). • Managers at all levels provide positive reinforcement for employees who identify "near misses" or emergent problems. • Professionalism and pride in workmanship are promoted in all plant activities/processes. • The operating organization is a learning organization that continually improves its processes. • The organization has in place an effective incentive system that encourages all personnel (including those in contractor and support organizations) to achieve the organization's goals and objectives. • All levels of managers and supervisors take an active role in developing the organization's business plan, and know how their work contributes to achieving the objectives of this plan. • Exit interviews are used effectively to identify reasons that employees resign from the organization. This information is used to improve the organization.

MANAGEMENT ISSUE 5: THE NEED TO ANTICIPATE THE LONG TERM HUMAN RESOURCE AND KNOWLEDGE MANAGEMENT NEEDS OF THE ORGANIZATION

Many operating organizations have recently had to face the prospect of replacing a retiring workforce that was responsible for commissioning and initial operation of the plant. At the same time they are faced with declining nuclear technology educational institutions and also declining interest in working in the nuclear power industry. This situation has focused attention on the emerging field of knowledge management, as well as on the need to take a longer term approach toward providing human resources.

Symptoms of problems related to this issue	Attributes of effective management related to this issue
• There is little opportunity to advance in the organization. • It is difficult to recruit suitable people for certain positions. • The organization is faced with the need to replace a large number of retiring employees in the near future. • The organization relies upon knowledge of individuals to properly operate and maintain the plant –procedures and other documents only provide general information, not details or the reasons why things need to be done in a certain way. • Middle and senior level managers focus almost exclusively on day-to-day operations with little or no effort devoted to mid and long term planning. • Training and professional development opportunities are routinely postponed or cancelled due to day-to-day demands. • Personnel aren't prepared to take on new responsibilities needed in the coming competitive energy market. • The organization has poor (or no) relationships with universities/educational organizations and professional organizations. • The organization has a poor image with potential employees. Potential employees feel that there is a risk associated with working at an NPP that doesn't exist in other jobs. • Managers and supervisors aren't qualified/prepared to take on their bosses' jobs. • People in the organizational don't have a sense of belonging. • People are concerned about what will happen to them when the plant closes/shuts down.	• The operating organization has a strategic plan of which an integral part is the development of human resources needed for the plant life cycle. • Job rotation/assignment is done in such a way that both employees and the organization benefit. • Programmes are in place for continuous development and training of staff based upon the long term needs of the organization. Succession planning and mentoring are included to transfer the tacit, undocumented knowledge of experienced personnel to their replacements. • Senior and middle level managers are actively involved in national and international initiatives related to management and development of human resources. • The organization has mutually beneficial partnerships with educational and industrial organizations. • Senior managers spend a considerable proportion of their time on long term planning activities. • The organization protects its significant investment in personnel through providing appropriate incentives to retain people. The explicit knowledge of the organization is collected and maintained in such a way that it can be easily retrieved, and utilized. • Line managers are well supported in carrying out their personnel duties by the HRM organizational unit. They find it responsive in helping them to get the people they need, while not making unnecessary demands on them.

MANAGEMENT ISSUE 6: THE NEED TO ESTABLISH EFFECTIVE INTERNAL COMMUNICATION METHODS

Particularly in an environment where significant changes are planned (or are being made), effective communications are essential. Communications from the bottom of the organization up are of equal importance as those from the top down, as it is those at the working level who know best whether changes are being effective in achieving their goals. If senior managers aren't hearing their feedback, then the continuing success of such changes may be jeopardized.

Symptoms of problems related to this issue	Attributes of effective management related to this issue
• Employees feel that managers aren't interested in their concerns or suggestions for improvement, and have stopped providing suggestions for improvement. • Employees don't ask questions or request clarification of orders or requests. When something goes wrong they don't take any initiative to determine the cause and correct it, but rather wait for their supervisor to do this. • People insist on only using formal channels of communication, leading to loss of time and accuracy. They wait to receive communications formally before planning any response. • Employees aren't told how the organization is performing (hazards, cost of production, outages/downtime) • People don't feel that planned changes are necessary. • People are discouraged from having a questioning attitude. • Our people have a "silo" mentality; they are satisfied that they are doing what they can to achieve the performance of their organization. However, they are unaware of solutions and ideas that others are using to achieve higher levels of performance.	• A clear and workable procedural compliance policy on internal communication is in place and is well understood at all levels. • Both formal and informal communication systems emphasize prompt feedback concerning actions taken in response to suggestions for improvement and identified weaknesses. • Plans for implementing changes include how and when information will be communicated to employees regarding the planned change. • Open communication prevails throughout the plant; problems are brought to light and not minimized; managers are available to talk and listen to staff; good teamwork exists. • A standard for formality of communications in plant activities exists, and the practices expected in this standard are reinforced in both work and training (including particularly simulator training and control room-centered activities). • The organization uses surveys or other appropriate tools to assess the organization's culture. • The organization follows an open door policy with regard to communication. A free flow of informal communication is maintained to supplement, but not replace, the formal communication system.

3. EFFECTIVE PRACTICES

3.1. INTRODUCTION

The effective practices identified in Section 2 represent the successful experience of NPP operating organizations that have prevented or corrected problems related to management of human resources. These practices are cross-referenced with management issues through the matrices below. Each effective practice is deemed to have primary applicability to a particular management issue and, in some cases, secondary applicability to one or more other issues (these relationships are identified in the matrices below).

As indicated in Section 1.3, effective practices have been obtained directly from NPP operating organizations, or through OSART good practices. The effective practices provided to the Agency from these sources have been edited and provided in a standard format in the Annexes to this report to permit the reader to focus on the essential elements of the practices. It is understood that these practices, if considered for other organizations, must be adapted to suit the culture, organization and operating environment of the plant.

3.2. MATRICES OF EFFECTIVE PRACTICES AND MANAGEMENT ISSUES

The six generic management issues identified in Section 2 are:

(1) The need to effectively organize work activities and designate responsibilities and authorities.
(2) The need to effectively train and develop personnel for their assigned responsibilities.
(3) The need to establish clear performance expectations and assess the extent to which these expectations are achieved.
(4) The need to provide effective incentives to achieve performance expectations.
(5) The need to anticipate the long term human resource and knowledge management needs of the organization.
(6) The need to establish effective communication methods.

For each of these management issues a separate matrix is provided on the following pages. These matrices identify the annex number and title of the effective practices that relate to a particular issue. Through these matrices, once NPP operating organization managers have identified a particular management issue that is of importance to them they can then review the related effective practices (in the annexes) that may be of help in improving the performance of their organization. Also in the matrices the organization that is using these effective practices has been identified in order that the reader can obtain additional information, if needed.

MANAGEMENT ISSUE 1: THE NEED TO EFFECTIVELY ORGANIZE WORK ACTIVITIES AND DESIGNATE RESPONSIBILITIES AND AUTHORITIES

Annex number Effective practice title	Management Issue					
	1	2	3	4	5	6
1. Designation of responsibility-OPG/Canada	x					
2. Job evaluation and job descriptions – Paks/Hungary	x		*			
3. Definition of interfaces –PSE&G/USA	x					
4. Meeting policy — PSE&G/USA	x					*
5. NPP organization benchmarking-INPO/USA	x			*		
6. National HRM administrative instructions for NPPs – Russian Federation	x					

"x" = primary focus of the example, "*" = example has some relevance for this issue as well

MANAGEMENT ISSUE 2: THE NEED TO EFFECTIVELY TRAIN AND DEVELOP PERSONNEL FOR THEIR ASSIGNED RESPONSIBILITIES

Annex number Effective practice title	Management Issue					
	1	2	3	4	5	6
7. Training alignment to improve performance – TVA/USA	*	x				
8. Moving from training to human performance technology – IAEA-TECDOC-1204		x	*	*		
9. Managing Human Resources to meet new business challenges –NPCIL/India		x	*		x	*
10. Multi-skilled workforce – TVA/USA		x				
11. Leadership training – OPG/Canada		x			*	*
12. Flexible learning system – BE/UK		x			*	*
13. Engineer and scientist internships –NNC/UK		x			*	
14. Human performance improvement system – North Anna/USA		x				*

MANAGEMENT ISSUE 3: THE NEED TO ESTABLISH CLEAR PERFORMANCE EXPECTATIONS AND ASSESS THE EXTENT TO WHICH THESE EXPECTATIONS ARE ACHIEVED

Annex number Effective practice title	Management Issue					
	1	2	3	4	5	6
15. Self-assessment and plant walk-downs – Kozloduy/Bulgaria			x	*		
16. Management contracts and decision aids-EDF/France			x	*		
17. Integrated performance management –TVA/USA			x	*		
18. Personnel Performance appraisal system – BE/UK			x			
19. Monitoring corrective actions – OPG/Canada			x	*		
20. Monitoring plant performance-North Anna/USA			x	*		*
21. Integrated management initiatives to improve performance - EDF/France		*	x			
22. Plant performance indicators-Dukovany/Czech Rep.			x	*		

MANAGEMENT ISSUE 4: THE NEED TO PROVIDE EFFECTIVE INCENTIVES TO ACHIEVE PERFORMANCE EXPECTATIONS

Annex number Effective practice title	Management Issue					
	1	2	3	4	5	6
23. Performance planning and appraisal system – Paks/Hungary			*	x	x	
24. Bonus based upon performance goals- TVO/Finland				x		*
25. Pay for performance – TVA/USA				x		
26. Negotiated business plan –TEPCO/Japan				x		
27. Classifying job positions – EDF/France			*	x		
28. Blame free reporting culture –BE/UK			*	x		

MANAGEMENT ISSUE 5: THE NEED TO ANTICIPATE THE LONG TERM HUMAN RESOURCE AND KNOWLEDGE MANAGEMENT NEEDS OF THE ORGANIZATION

Annex number Effective practice title	Management Issue					
	1	2	3	4	5	6
29. Control of organizational change for NPPs-Spain					x	
30. Integrated staffing plan to replace retiring workforce – TVA/USA					x	
31. Working Partnership to Create a Highly Qualified Nuclear Workforce -Canada		*			x	
32. Knowledge management: documentation of tacit knowledge –TVA/USA and Paks/Hungary		*			x	
33. Career and succession planning –Paks/Hungary		*			x	
34. Resource pool for future top managers –EDF/France					x	
35. Pool of Talent for Management Positions-Paks/Hungary		*			x	
36. National assessment of nuclear and radiological skill base - UK					x	
37. Nuclear infrastructure support-Switzerland					x	

MANAGEMENT ISSUE 6: THE NEED TO ESTABLISH EFFECTIVE INTERNAL COMMUNICATION METHODS

Annex number Effective practice title	Management Issue					
	1	2	3	4	5	6
38. Cultural change and measurement (Star 7) –TVA/USA			*	*		x
39. Internal communication system re-design – Paks/Hungary	*					x
40. Effective communication – INPO/USA						x
41. Teamwork and communication –Lasalle NPP EXELON/USA		*				x
42. Annual safety week- Ulchin NPP/ROK						x
43. Communication and relations with the local community – Dukovany/Czech Rep.						x
44. Developing and improving human resource management systems -IAEA					x	x

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Annex 1
DESIGNATION OF RESPONSIBILITY

Applies primarily to Management Issue No. 1

1. OVERVIEW

An NPP operating organization has implemented a system for ensuring that organizational responsibilities are clearly assigned without duplication or ambiguity. To ensure that these responsibilities are clearly understood, they are reviewed with the staff.

2. KEY ELEMENTS

Each organizational unit is required to list its responsibilities and also to name the person assigned to each responsibility. These responsibilities are regularly reviewed for omissions, duplications and errors. They are also revised each time the organizational structure changes.

The responsibilities are streamlined and optimized; a matrix is developed to show primary and secondary responsibilities.

The plant manager approves a summary of responsibilities for each organizational unit.

Individuals are selected to be the leaders of important administrative processes (that generally involve multiple organizational units). Their primary function is to collect and analyze process performance, observe trends, ensure that process documentation is kept current, and to continually improve the process based upon experience feedback.

The understanding of these responsibilities is promoted through training and coaching.

Responsibilities are also assigned through delegation. Managers receive training in the delegation process to ensure that responsibilities are understood and are assigned at an appropriate level.

The allocation of responsibilities is periodically reviewed.

Annex 2
JOB EVALUATION AND JOB DESCRIPTIONS

Applies primarily to Management Issue No. 1

1. OVERVIEW

This NPP operating organization undertook an evaluation of all NPP jobs with the objectives of reducing the number of job categories (providing more flexibility in job assignment), ranking the jobs as to their importance to the plant's mission and clearly defining responsibilities and authorities for job categories.

2. KEY ELEMENTS

This project required considerable negotiation with trade unions and plant staff in order to proceed with the effort. These negotiations focused on the criteria to be used in ranking jobs, and on who would participate in the evaluation.

The results of the job evaluation reduced the number of job categories and jobs by more than 50%.

The job descriptions provide sufficient detail concerning tasks, responsibilities, authorities and interfaces to be used as tools for selection and recruitment of personnel, performance appraisal criteria, and professional development.

Annex 3
DEFINITION OF INTERFACES

Applies primarily to Management Issue No. 1

1. OVERVIEW

This practice illustrates establishment of consistent definitions of the relevant responsibilities and lines of communication whenever two or more organizational units contribute to an activity that has an impact on the safety, reliability or economic performance of the plant.

2. KEY ELEMENTS

A list of internal interfaces within the plant is produced and an interface agreement is prepared for each of them.

A list of external interfaces with other organizations (both within the operating organization but outside the plant, and external to the operating organization) are compiled and interface agreements also prepared for them.

Mangers of organizational units are responsible for preparing these agreements. They are authorized by the plant manager.

The following are defined in each agreement:

- Responsibilities of each interfacing organization.
- Administrative details of communications, including key positions for inter-organizational communications.
- Reporting relationships (frequency and content).
- Assignment and control of costs.
- Coordination of quality programmes including criteria for judging the acceptability of work.
- Time-scales for required actions by interfacing groups.
- Provisions for periodic review and updating.

Annex 4
MEETING POLICY

Applies primarily to Management Issue No. 1

1. OVERVIEW

Meetings consume a significant portion of time, particularly for managers. In order to control the amount of time spent at meetings and to improve meeting effectiveness, one operating organization has introduced a "meetings policy," which limits the duration of meetings and places responsibilities on meeting leaders and attendees.

2. KEY ELEMENTS

Meetings must always have a pre-planned duration, which in most cases is one hour or less.

The meeting notice must be completely filled out (agenda) and issued at least one week prior to the meeting.

No one should be invited to a meeting without a definite purpose and role.
The meeting leader is responsible for:

- Assigning specific actions to be taken to resolve the issues discussed.
- Assessment of meeting feedback from attendees.
- Recording of actions items; by whom and when.

Attendees are responsible for evaluating the effectiveness of the meeting and for providing feedback to the meeting leader.

Leaders and attendees have agreed rights that are published, for example:

- The right to leave if the meeting does not start within 5 minutes of the scheduled time.
- The meeting can be cancelled if attendees are not there within 5 minutes of the scheduled time.
- There must be a written agenda.
- Discussion of non-agenda items can be challenged.
- The right to leave the meeting at the scheduled adjournment time.
- Attendees exercising these rights will not suffer any consequences.

These rights can be adapted to suit specific organizational units.

The meeting policy was distributed to all supervisors. Meeting performance was tracked through a review of meeting evaluation forms.

Annex 5
NPP ORGANIZATIONAL BENCHMARKING

Applies primarily to Management Issue No. 1

1. OVERVIEW

This is an example of benchmarking used to consider organizational structure alternatives for an NPP operating organization. This example uses organizational design principles to aid in the evaluating alternatives.

2. KEY ELEMENTS

The six principles that were used in this benchmarking analysis of organizational design alternatives are:

- Design the organization based on the company's vision.
- Organize work functions to enhance interfaces among work groups.
- Increase spans of control and minimize layers of management
- Minimize the number and size of staff (support) organizations.
- Design the organization to be flexible.
- Change the organization design only when needed to meet objectives.

The importance of using such principles when benchmarking organizational issues is that they provide an objective way to both compare alternatives, while also helping to understand the basis for designs of other NPP operating organizations (which may be quite different than the six principles listed above).

Annex 6
NATIONAL HRM ADMINISTRATIVE INSTRUCTIONS FOR NPPs

Applies primarily to Management Issue No. 1

1. OVERVIEW

For the purpose of safety improvement and managerial effectiveness in the area of nuclear power, in 1995 a federal law on use of atomic energy was adopted. This law required organizational and rule-making efforts from both state administration and supervisory bodies and management of the NPP operating organization. One of the results of those efforts was an agreement by these organizations on qualification requirements for managers and senior technical specialists at NPPs.. Additionally, the operating organization for all NPPs has developed administrative instructions for all human resources management related aspects in the nuclear industry, including staff selection, initial and refresher training, assignment, and medical and psychological examinations.

2. KEY ELEMENTS

The qualification requirements contained in these administrative instructions may be used as direct regulatory documents or be the basis for development of internal organizational-and-administrative plant documents, i.e. job descriptions to contain a specific list of employees' functions subject to specific features of industrial, labor and managerial requirements, as well as their rights and responsibilities. These qualification requirements have been prepared for 20 positions of nuclear plant personnel who shall obtain licenses (permissions) by the federal authority for nuclear and radiation safety for operations in the area of use of nuclear power. The qualification requirements for each position have three areas: 1) responsibilities, 2) knowledge of regulatory requirements, and 3) professional knowledge and skills. These administrative instructions address how the above requirements will be implemented by NPPs. One of the principal means used to ensure consistent quality in human resources management is an annual schedule for each NPP that is approved by the operating organization. This schedule includes: recruitment; staffing; training including industrial, radiation, nuclear and fire safety; examinations on these training topics; and medical and psycho-physiological examinations.

Annex 7
TRAINING ALIGNMENT TO IMPROVE PERFORMANCE

Applies primarily to Management Issue No. 2

1. OVERVIEW

The value of training in a learning organization is based upon the extent to which it contributes to improved performance. For this plant, the operator training organization has developed a method to assess the needs of each operating crew prior to their training week.

2. KEY ELEMENTS

Identification of weaknesses in human performance behaviors led to the operations and training managers to develop expectations for training instructors to independently observe real time plant behaviors and integrate the results into scheduled training the next week.

A training instructor is assigned to each crew prior to its assigned training week to observe the crew and tailor training to the areas needing improvement, especially in human performance behaviors. Examples of these behaviors include, three-way communication, peer checking, self-checking, procedure compliance, and place keeping. The training instructor is assigned to spend approximately one to two back-shift tours with the operating crew per training cycle.

Weak performance behaviors observed during real time plant conditions are quickly corrected before they become engrained into the work practices of the individual and crew competencies.

Annex 8
MOVING FROM TRAINING TO HUMAN PERFORMANCE TECHNOLOGY

Applies primarily to Management Issue No. 2

1. OVERVIEW

This organization is moving from the approach of training specialists to one of human performance technologists. The difference being that human performance technology considers training as one of the possible integrated solutions to improving the performance of people in an organization.

2. KEY ELEMENTS

Training specialists focus on the learning needs of individuals in organizations, and expect that if the learning needs are identified and met that performance will improve. While it is often the case that training is part of performance improvement interventions that are needed to reduce the gaps between current and desired performance in an organization, generally other interventions are needed as well, depending upon the reasons for the performance gaps. If the gaps are due, at least in part, to knowledge deficiencies then training should be part of the performance improvement interventions. However, if the gaps are due to lack of motivation, poor job design, inadequate supervision, or ambiguous procedures/standards then more or better training is unlikely to result in desired performance. Human performance technology generally targets interventions at improving the system factors that directly affect the person doing the work.

Making the transition from training specialist to human performance technologist necessitates broadening one's perspective to focus on performance issues and business needs at all three levels: organizational, process and individual performer. It involves examining the organization's culture, policies, mission, goals and operating strategies.

Annex 9
MANAGING HUMAN RESOURCES TO MEET NEW BUSINESS CHALLENGES

Applies primarily to Management Issues Nos. 2 and 5

1. OVERVIEW

Any organization is subject to changes in the external business environment as well as its own weaknesses. This NPP operating organization, during the past several years, has made significant improvement in both operational and safety performance primarily through developing new approach to managing human resources. This approach essentially aimed at new learning and improved organizational capability to respond to the new business pressures.

2. KEY ELEMENTS

This NPP operating organization created its own turnaround strategy by basically looking within to identify areas of intervention; it examined its day-to-day activities for this purpose. Top management forums were created to address specific performance issues. The review focused on the process of goal setting and measurement through various performance indicators for identifying contributors to performance shortfall. From these reviews it emerged that the company needed to learn best practices towards improved NPP and human performance. Therefore, it opted for internal and international peer evaluations for assessment of its strengths and areas of improvement against structured performance objectives and criteria for NPPs. This caused the NPP operating organization to learn new competencies towards such improvement initiatives. Multiple diagnostic surveys were administered to a population of over 200 middle level executives during the training workshops. These executives were selected particularly for their hands-on association with the ground realities in conduct of the day-to-day operations of NPPs as well as the participative goals set by the company. The survey established the following pointers to improve human performance and plant performance. The figures in brackets indicate the percentage of respondents with the view mentioned: improve on-job training with focus on quality assurance (60%), improve work practices (72%), correct root causes rather than fix symptoms and train on root cause analysis (70%), train on identifying precursors to human failure and remove such “set-ups” rather than investigate who failed to perform” (95%), and train on teamwork to remove interface problems (75%). Essentially, these survey results brought out learning needs to improve quality of work outputs. One area for urgent review in the context of management of human resources was "human errors" in day-to-day activities. Accordingly, training system development was given top priority to address human error reduction which called for implementation of systematic approach to training methodology, root cause analysis and soft skills development in the on-going training and qualification program. The cultural improvements were given high place through emphasis on procedural adherence, self-checking, teamwork and corporate identity. By creating appropriate management oversight, quality tools and value systems the challenges were met. This NPP operating organization basically created a learning focus in its activities and in its people. This organizational learning will go a long way to meet the future challenges of the Vision 2020, which calls for an eight-fold increase in nuclear generation in the country by the year 2020.

Annex 10
MULTI-SKILLED WORKFORCE

Applies primarily to Management Issue No. 2

1. OVERVIEW

Historically this operating organization has relied heavily on single-discipline personnel, especially those employees responsible for operations and maintenance tasks. Working with trade unions, this organization has developed and is implementing a multi-skill training initiative. Multi-skilling is the term used to describe training for employees to learn and perform cross-craft multiple skill tasks.

2. KEY ELEMENTS

Multi-skilling gives employees the opportunity to earn more pay by broadening their skills and this will help the organization and its employees remain competitive in the industry. By broadening employees' skills, many handoffs that cause delays and interruptions in work processes are reduced.

The multi-skilling program is a classic win/win for both employees and the company. Employees will develop new skills while making the most of current ones, and the organization will move into the future with a workforce second to none - more flexible, more efficient, more competitive. To be implemented over the next several years, the multi-skilling program represents a change in thinking—to transform our business.

Currently, the organization has successfully completed the training for around 25% of its affected employees. The remaining employees are either progressing through the training requirements as intended or are scheduled to attend training in the future. Additionally, the organization has conducted several pilots of the training designed for supervisors of multi-skilled employees. This training focuses of the effective utilization of the new multi-skilled workforce. The organization will continue to train the incumbent employees over the next several years with plans to complete the transition to a multi-skill workforce in 2005.

Annex 11
LEADERSHIP TRAINING

Applies primarily to Management Issue No. 2

1. OVERVIEW

This operating organization has developed a broad range of leadership training tools to address the needs of all levels of managers and supervisors.

2. KEY ELEMENTS

Among the leadership training tools used by this organization are: university business schools, the Senior Nuclear Plant Manager Course, professional training programs for maintenance, engineering and shift managers, a first line manager academy, observation and coaching and human performance training. These tools are integrated and organized by the human resources department.

For example, for first line managers the topics addressed include: organizational structure, human performance, human behavior, safety culture, change management, work planning, managerial teamwork, negotiation, coaching and performance management.

Leadership training results are measured through a combination of feedback, benchmarking, evaluations, assessments, trending and analysis, performance appraisals, and plant performance. The long-term success of such a program depends upon continuing support and involvement from top-level management.

Annex 12
FLEXIBLE LEARNING SYSTEM

Applies primarily to Management Issue No. 2

1. OVERVIEW

This operating organization, having had a previous experience with e-learning that was not particularly successful, took a new approach that was considerably more effective in satisfying the organization's training needs.

2. KEY ELEMENTS

This organization had five years of earlier experience with e-learning that did not achieve the intended goals primarily because: most materials were generic with little industry or plant specific information; no work time was allocated for this training; and material was mostly "nice to know" rather than "need to know".

Recently a new approach to training was taken with significant benefits to the organization. This approach included:

- Improved training needs analysis to target training and reduce unnecessary/inappropriate training.
- Pre-assessment of training needs, with modularized delivery to fill knowledge gaps and reduce repetitive training.
- Greater use of technology to ensure that training delivery is flexible and timely.
- Revised company-wide training quality framework.

Results of this flexible learning system have been positive. These results include: improved access to and timing of training (it is available when and where needed); providing an enabling resource for other company initiatives; supporting team leaders in their management roles; more targeted and tailored training via diagnostic assessment; and time off at the plant level is reduced.

Annex 13
ENGINEER AND SCIENTIST INTERNSHIPS

Applies primarily to Management Issue No. 2

1. OVERVIEW

This internship programme applies to both company sponsored students and newly hired graduate engineers and scientists. These internships are indented to prepare scientists and engineers for employment in the engineering activities of the organization. These internships are also designed to meet the requirements of professional institutions for certification.

2. KEY ELEMENTS

The internships are made up of periods of on-the-job and more formal training. Assignments are of varying durations and the programme is designed to achieve different learning objectives to suit the company's business needs, the individuals aspirations and professional institution recommendations. The internships are designed to give broad experience regarding the company and typical projects. Training includes, formal courses, seminars, lectures, external visits, and business games. There are six parties to the internship: 1) intern, 2) mentor, 3) supervisor/team leader, 4) business manager, 5) line manager, and 6) personnel/training department.

The mentor is responsible for encouraging, directing and counseling the intern during the training period. In all on-the-job assignments the intern is expected to address real work problems, with an expectation that they will be carried through to a successful conclusion. The discipline of meeting real technical and project commitments is regarded as an essential part of the process. At three month intervals a formal review of progress in made between the intern and mentor.

Annex 14
HUMAN PERFORMANCE IMPROVEMENT PROGRAMME

Applies primarily to Management Issue No. 2

1. OVERVIEW

This NPP operating organization has developed a structured system to focus on human performance improvement.

2. KEY ELEMENTS

The plant has developed several programs in the area of human performance that have substantially contributed to improved individual and group performance. Each department has a human performance specialist who has developed and applied training on human factors for the whole department and has developed specific human performance impact programs. Training by human performance specialists is given to managers and supervisors during their formal training and refresher programs. Examples of human performance difficulties from the plant and their solutions are described. The plant has developed a Human Performance Agreement program. Managers and supervisors periodically observe key activities, such as shift turnover, job briefing and equipment tagouts and report areas for improvement in human performance. As an example, the operations department has instituted the following program:

- Procedure and tagging activities are tracked monthly for human performance errors.
- The number of procedure steps completed and danger tags placed are totaled to determine the number of opportunities for error.
- Errors, categorized by severity, are then sorted by time of day, day of the week, and type of error.

The information is trended to provide management with areas where additional attention is needed. This has led to changes in self-checking, component labeling practices, and use of simultaneous and independent verification. The number of activities performed is also used to determine if operator workload is equitably distributed. Concurrent activities in maintenance, surveillance, and tagging schedules are limited to reduce the potential for error.

This was identified as an OSART good practice.

Annex 15
SELF-ASSESSMENT AND PLANT WALK-DOWNS

Applies primarily to Management Issue No. 3

1. OVERVIEW

This NPP operating organization has significantly improved the housekeeping and material condition of the plant through an effective self-assessment programme that includes walk-downs of the plant.

2. KEY ELEMENTS

Efficient, well planned and structured walk-downs of the plant have been created as a part of the self-assessment program. National and corporate management have supported this by their personal plant walk-downs, which are undertaken monthly. Forty to forty five managers participate in the plant walk-downs. The daily walk-downs are performed together with a shift member in accordance with a schedule and follow certain routes, which cover all areas and rooms of the plant. The specialists performing walk-downs survey the following:

- normal staffing and possible troubles;
- condition of the working places;
- housekeeping, cleanliness, order of the rooms, premises and equipment; etc..

In addition, their duty is to discuss with the personnel quality assurance (QA) aspects and safety culture and the role of each employee for achieving the housekeeping goals that have been set.

Control of the walk-down system:

- the specialists are instructed before each walk-down by management;
- the specialists fill in walk-down check lists and arrange immediate measures for those that can be easily corrected and prepare nonconformance lists for deficiencies which need corrective actions;
- the specialists report at the chief engineer’s morning meeting;
- the division managers arrange corrective actions;
- the QA section submits monthly reports on the performance to the plant manager.

Moreover, national and corporate management have supported this by their personal monthly plant walk-downs. This combination of walk-downs has supported the plant to make a significant improvement in housekeeping and material condition.

This was identified as an OSART good practice.

Annex 16
MANAGEMENT CONTRACTS AND DECISION AIDS

Applies primarily to Management Issue No. 3

1. OVERVIEW

This multi-site, national NPP operating organization has developed effective tools for monitoring plant performance and linking performance at all levels to corporate objectives.

2. KEY ELEMENTS

The strategic plan and management contracts address both national objectives (which contribute to the achievement of Corporate Strategic Plan objectives), and site objectives, specific to departments. These objectives are used with suitable indicators for each management level. Thus, each plant department and section has a monthly control and monitoring system. The unit control system is used to measure plant performance and clearly indicate deviations, malfunctions or slow parameter drift over a period of time. The control system is a decision aid tool used by the management team, covering all the objectives of the Strategic Plan. Performance in the areas of nuclear safety, industrial safety, environmental, availability, management and cost control is assessed. As a part of the management contract monitoring, each department defines its contribution to national indicators and commits itself to results assessment indicators enabling progress in the various action plans to be assessed and monitored. To reinforce staff commitment to the plant's main objectives and priorities, the results for the five most significant indicators are individually notified monthly, to each employee. The results are also communicated to contractors working on the site, either on the notice boards or through the internal video network. The objective is that all the operating organization and contractor employees should be fully aware of the plant's strong and weak points.

This was identified as an OSART good practice.

Annex 17
INTEGRATED PERFORMANCE MANAGEMENT

Applies primarily to Management Issue No. 3

1. OVERVIEW

This operating organization has implemented an employee performance review and development system that is aligned with both its Critical Success Factors (CSFs) and its expected behaviors.

2. KEY ELEMENTS

The organization has been placing more and more emphasis on making employee performance review and individual development more than a partially-attended-to check-list activity. In recent years, a standardized Integrated Performance Management (IMP) calendar of activities has been established. The process has been moved on-line which allows for automated tracking of IMP completion activities. Accordingly, the performance review completion rate for managers and specialists has increased to 100% in the past year.

Another improvement is the alignment of the performance review package with both the CSF's and the organization's Winning Behaviors. Performance objectives are connected to a specific CSF in order to improve employee line-of-sight and accountability for the organization's overall success. Each manager/specialist employee is also evaluated against selected Winning Behaviors.

Annex 18
PERSONNEL PERFORMANCE APPRAISAL SYSTEM

Applies primarily to Management Issue No.3

1. OVERVIEW

This operating organization has established a personnel performance appraisal system that includes a comparison of an individual's self-assessment of his/her performance with that of the individual's supervisor. The criteria used for appraisal are behaviors that are considered important in every job in the organization.

2. KEY ELEMENTS

Sixteen behaviours are included in the performance appraisal, including; breadth of vision, judgement, influencing, open communication, people development, empowering, performance management, safety management, commercial awareness, customer focus, financial focus, company networking, achieving results, project management, and managing change.

The required level of performance in each of these sixteen areas is agreed to for each job. For example, for the "managing change" behavior, the lowest level is "accepts the need for change in the organization", while the highest level is "delivers strategy for long term change in support of company-wide change process." The latter level would apply only for senior managers, while the former would be the minimum behavior expected for any job (with higher level behavior expected for most jobs).

Individuals assess their own performance prior to a discussion with their supervisor. The output of the discussion is an agreement between the two as to the level of performance achieved.

Annex 19
MONITORING CORRECTIVE ACTIONS

Applies primarily to Management Issue No. 3

1. OVERVIEW

This NPP operating organization has an effective system of corrective action follow-up and assessment. The system is based on an analysis of findings, establishment of corresponding corrective actions and regular follow-up.

2. KEY ELEMENTS

Corrective actions arise out of both independent and self-assessments. Each finding is analysed for its root cause; corresponding corrective actions are established.

All corrective actions are entered into an online database, assigned to a responsible manager, and assigned both intermediate and final completion dates.

All corrective actions are periodically followed up in a meeting chaired by the plant manager. Those managers responsible for corrective actions attend as required.

Quality department staff independently assesses all completed actions with emphasis on results (performance).

Annex 20
MONITORING PLANT PERFORMANCE

Applies primarily to Management Issue No. 3

1. OVERVIEW

This NPP operating organization has developed and implemented effective methods to assess plant performance that have led to improved performance.

2. KEY ELEMENTS

There are several assessment tools used to monitor plant performance. These assessment tools have contributed to achieving improved levels performance and assist management in focusing in areas that require improvement. Nuclear Business Plan Performance Drivers are established to monitor and assess the performance of the entire Nuclear Business Unit. The performance drivers are divided into five sections that include Safety, Nuclear MWHR Production, Resource Management, External Relations and Regulation, and System/Component Reliability. Each performance driver has windows that contain established goals. The status of each window is monitored on a monthly basis.

The Plant Performance Annunciator Panel Program provides station management the capability to monitor and assess plant performance on a quarterly basis. The three main performance areas on the main annunciator panel include Equipment Performance, Non-Equipment Performance, and Cross Functional Performance. Each assessment area is reviewed against an established set of criteria. The assessment area is colored Green (Significant Strength), White (Satisfactory), Yellow (Improvement Needed), or Red (Significant Weakness). Assessment areas that are colored Yellow and Red receive additional management. The results of the quarterly assessment are reviewed by the management review board and displayed to inform station employees of plant performance.

Plant level self-assessments are conducted by expert teams including people from other NPPs to determine the causes and contributors to identified personnel or programmatic weaknesses. The results of the assessments are reviewed by the management review board (MRB) to provide more objective conclusions that support effective decisions and corrective actions. Recommended corrective actions from plant level self-assessments are tracked to ensure resolutions are completed in a timely manner and they are effective. Department self-assessment plans are established to determine whether department programs, processes, procedures, and expectations are effective. The results of the department self-assessments are provided to the department head to initiate corrective actions for areas needing improvement. The self-assessment is also provided to Plant Nuclear Safety (PNS). PNS reviews the completed self-assessment and provides the department a grading sheet to indicate the quality and consistency of the self-assessment. The results of the grading are trended in the Plant Performance Annunciator Panel Program.

This was identified as an OSART good practice.

Annex 21
INTEGRATED MANAGEMENT INITIATIVES TO IMPROVE PERFORMANCE

Applies primarily to Management Issue No. 3

1. OVERVIEW

This NPP operating organization has developed an integrated set of management initiatives that have resulted in considerable improvement in plant performance.

2. KEY ELEMENTS

This NPP has achieved rapid and broad improvement in a number of areas over the last few years. The management tools used to achieve these results collectively are an effective means to achieve rapid improvement. The programs that make up this good practice include:

a). The forward thinking management lead strategy formulated approximately 2 years ago has been supported by an effective integrated information system which links all the key business objectives such as, business plans, action tracking, training, documentation updates, performance indicators which are accessible to all users.
b). The anticipated loss of competencies over the next 10 to 12 years has been recognized as a major future issue and the replenishment program is ongoing. Both corporate and plant management are fully supporting this program.
c). It was recognized that the interface between human resources department, training department management teams and specific training representatives within each department has become a means of improvement at the plant.
d). Operation department training is supported by committed management involvement, such as attending and evaluating of training in classroom and on the simulator including the observations and operator assessments. Managers and supervisors are also involved in the design of new training courses within operation department.
e). In order to unite staff across all departments, Operations developed a report entitled "Operations Nuclear safety requirement". All departments shared in these straightforward requirements to improve the performance of the plant in terms of nuclear safety, industrial safety and radiological protection and availability. The report aids other departments to understand what is essential to safe and reliable operations.
f). A contractor-monitoring program has been implemented that directly contributes to the improvement of safety practices at the job site.
g). The development of the Human Factors Network provides for training one or two human factors evaluators in each plant group. These people will lead the human factors development within their group, they will ensure that the needs of their group are represented in the development of the human factors program, and they will report and analyze human factors issues.

This was identified as an OSART good practice.

Annex 22
PLANT PERFORMANCE INDICATORS

Applies primarily to Management Issue No. 3

1. OVERVIEW

This NPP operating organization has developed a comprehensive set of plant performance indicators that have been well communicated to all levels and areas of the organization.

2. KEY ELEMENTS

A system of performance indicators, which was developed for the purpose of support of management of all areas of the power plant is used directly by operating organization managers for management of their areas. The indicators are structured in such a way that it is possible to monitor performance down to the individual units. The indicators consist of main, partial and supporting indicators for each area. These are monitored by individual managers. What makes the use of this system most important is its inclusion in annual plan of the plant and the Harmonizing Program. Acceptance criteria are determined for the indicators and their actual values are assessed monthly. The actual values are displayed directly for the specified objectives in the plant's information system.

This method of use of indicators makes it possible to provide motivation for managers on all levels and monitor trends in graphic form. This supports managers when preparing proposals of measures leading to improvements and thus, system of continuous improvement is formed. Information notice boards are located around the power plant where each power plant department can see its performance indicators and at the same time, all employees are informed and motivated. This system also enables direct inter-link of data (charts) facilitating the work of managers during their presentation of indicators.

In the Maintenance Division the indicators are established on the division level, cascaded to specific indicators for maintenance sections and cover a wide range of goals and objectives. These performance indicators give management the possibility to take corrective measures based on the trends given by the indicators, for example to improve availability on diesel generators and cut pump maintenance costs.

This was identified as an OSART good practice.

Annex 23
PERFORMANCE PLANNING AND APPRAISAL SYSTEM

Applies primarily to Management Issue No.4

1. OVERVIEW

This operating organization has developed a comprehensive employee performance planning and appraisal system that: allows managers to plan and evaluate performance at all levels of the organization; provides monetary incentives directly linked to objective assessment of performance; and helps to select the best persons for vacancies.

2. KEY ELEMENTS

The starting point for this system is a clear job description that specifies the tasks needed for safe and reliable plant operation. These tasks are linked to plant performance as well as to goals in the annual business plan. Each employee's goals for the year are agreed between the individual and supervisor. The goals are such that both the employee and supervisor can monitor progress during the year. At the end of the year an objective assessment is made of performance. The results of this assessment are used to adjust the employee's annual bonus.

Information technology has been used as both an aid to supervisors in completing the assessment and as a tool for managers to monitor implementation of the system.

Implementation of the system included training employees and managers in system operation. Continuing top management support for the system has been needed.

Annex 24
BONUS BASED UPON PERFORMANCE GOALS

Applies primarily to Management Issue No. 4

A-1 OVERVIEW

This NPP operating organization has an ongoing bonus/incentive system for all its personnel.

A-2 KEY ELEMENTS

The annual quality premium (bonus) is determined every autumn for the coming year. Organization units propose their own indicators. Proposals are handled in a co-operation committee and finally accepted by the board of directors. The quality premium is paid to every employee. Payment is done once a year in January. The maximum amount of the bonus that can be earned (if all goals are realized) corresponds to about three weeks salary. The status with respect to the premium are published and prominently displayed throughout the plant. They are calculated and updated on a monthly basis. The components of the bonus include: production, productivity, cleanliness and order, and costs. Each organizational unit also identifies one component unique to it based upon current priorities.

Annex 25
PAY FOR PERFORMANCE

Applies primarily to Management Issue No. 4

1. OVERVIEW

This operating organization (a government owned company) has adopted a management philosophy of paying for performance; both at the individual level and team level. Executive compensation has also been strengthened to make awards more closely tied to business unit performance.

2. KEY ELEMENTS

For manager, specialist, and professional employees, policy changes in base compensation have been implemented which have had the effect of providing larger pay increases to outstanding performers. In the past, there was little distinction in annual pay awards between the best employees and the average employees.

A new Team Incentive Plan (TIP) has introduced the concept of pay-at-risk to all operating organization employees in order to give everyone a stake in the performance of the company. The operating organization will award employees a lump sum award of up to 6.25% depending on the results achieved with respect to safety, operational and other business goals. The payout only occurs if minimum threshold performance targets are met. Last year, most employees received a lump sum of about 4.5% as the organization realized high levels of performance in many areas. Since the purpose of the TIP is to motivate employees to focus on achieving the CSF's, we ask employees if the process is, in fact, motivational. Last year, we observed about a 10% increase in employee agreement that the TIP motivates them to achieve the CSF's. And a full 65% of employees agree that they have recently reviewed and understand their balanced scorecards and associated improvement action plans. Thus, Winning Performance is rapidly becoming a way of life with pay-for-performance as a major catalyst in the process.

The concept of pay-for-performance and pay-at-risk is most evolved within the Executive Compensation program. All of the Executive performance incentive awards are tied directly to measurable business outcomes. This has resulted in top management becoming very engaged in the Winning Performance process and Balanced Scorecards - helping to make these key processes a way of life.

Annex 26
NEGOTIATED BUSINESS PLAN

Applies primarily to Management Issue No. 4

1. OVERVIEW

NPP operating organization business plans are often developed from the top of the organization without any real input or negotiation from the lower ranks. This multi-plant operating organization has developed its business plan based upon objectives set at the corporate level, with analysis and inputs from organizational units at NPPs, and then final formulation by the plant's senior management. The inputs received from plant organizational units have a major impact on formulation of clear plant objectives and also in personnel commitment to these objectives.

2. KEY ELEMENTS

Two months before the beginning of the year, the operating organization head publishes the corporate targets for the year. From these targets the plant manager establishes his or her own performance objectives for the plant.

From these objectives each section manager at the plant is required to draw up proposals for implementing them within the scope of his or her section.

Each section mangers presents his or her proposals at a meeting of senior plant managers. Proposals are accepted or revised through a series of meetings with each section manager. Then plant objectives are revised to incorporate section inputs, and included in the business plan.

Review meetings are held twice a year between the plant manager and each section manager to monitor performance and to agree on corrective action, should it be needed.

Annex 27
CLASSIFYING JOB POSITIONS

Applies primarily to Management Issue No. 4

1. OVERVIEW

This operating organization has initiated a process for classifying job positions and implementing a new payment system in order to:

- Determine a hierarchy of the salaries based on the requested competencies of the job positions, and to up to date the salary system.
- Analyze the organization.
- Inform about the company expectations related to each job position.
- And therefore to enhance motivation.

2. KEY ELEMENTS

During the initial phase, job positions were described and classified; at the end of this phase, the company was able to finalize the method, to negotiate with the trade-unions and to launch the implementation phase at the local level (NPPs). Based on the results of the job description, a second phase was devoted to determining the hierarchy of the different job positions. Each job was evaluated according to 7 criteria:

1. Theoretical knowledge and skills.
2. Problem solving. (from simple to complex)
3. Relationship. (communication with the others, internal or external communication)
4. Counsel. (expert advising)
5. Organization. (of one's work, of the work of others, a team, a department, etc.)
6. Self-management, autonomy.
7. Contribution to the results of the company.

These criteria depend on the company's culture, and allow NPPs to develop their own organization. They are based on the required competencies for each job position.

Instead of 19 job classifications in the previous salary system, the new system classifies job positions in only 8 classifications. With this new system, staying in the same job position, an individual can expect 45-50% improvement on his (or her) wages, instead of only 25% previously. In a period of low job turnover within the company, this new system creates more motivation, when staying in the same job position.
Now, the payment system is composed of :

1. the "basic payment", for each job position, as a result of the classification process,
2. the "payment for professionalism" plus "payment for results", for the individual, in a determined job position
3. the "payment for constraints", for the surrounding of activities and operating conditions.

Annex 28
BLAME FREE REPORTING CULTURE

Applies primarily to Management Issue No. 4

1. OVERVIEW

The concept of a blame free reporting culture is to provide incentives for individuals to report opportunities for organizational improvement, rather than individuals being reluctant to report such situations because they are concerned that they, or someone else will be blamed for the "mistake."

2. KEY ELEMENTS

This organization has found considerable opportunities to improve the organization's safety and operational performance through providing incentives for employees to identify and report such situations.

Perhaps the best way to describe the meaning of a blame free reporting culture is to describe the reaction that can be expected when an event occurs where the root cause is human error. In a blame free reporting culture, human errors are investigated to discover the failure in the management system that allowed the error to occur. The avoidance of looking for an individual to blame encourages an open atmosphere in which it is possible to admit to mistakes and in which a near miss can be freely reported. The allows events and near misses to be treated as learning experiences, thus providing opportunities to allow remedial action to be taken.

A blame free culture is not one in which individuals have no responsibility for their actions. Staff are required to act within the boundaries of reasonable and clearly expressed Company expectations of attention to safety and adherence to procedures. A simple test of what is reasonable is to ask the question – "Given all circumstances, and the standards currently accepted, can I be sure that I (or this person's peers) would not have taken the same or similar action?"

Annex 29
CONTROL OF ORGANIZATIONAL CHANGE

Applies primarily to Management Issue No. 5

A-1 OVERVIEW

NPPs in this country (owned by several different operating organizations) have established a national procedure to review and approve organizational changes, so that they may be identified and evaluated prior to their implementation, in order to identify any potential impact on the safety operation of Plants.

A-2 KEY ELEMENTS.

In late 2000, and following the guidelines of the nuclear safety regulator, a national report was prepared establishing the minimum staffing requirements to perform safety functions in each of the plants. In order to do that, a working group was set to review all activities performed at these NPPs, to classify them into safety related/ non safety related, and finally to assign them staffing requirements according to the following items:

1. Activities to be performed by the plant's own staff.
2. Activities that could be subcontracted but with a high level of supervision by the plant's own staff.
3. Activities that could be subcontracted with a lower level of supervision by the plant's own staff.

Based on the above, each plant determined their minimum staff requirements to perform safety related activities in the specific plant. A plant specific report was prepared and transmitted to the nuclear safety regulator.

After the issuance of said report a procedure was set in force in each of the plants to evaluate the impact of any organizational change affecting safety related activities, prior to its implementation. This procedure requires that a written evaluation be performed and approved by General Management if one of the following causes occurs:

1. If there is a modification on the activities considered as safety related, or there is a change in the established classification.
2. If there is a change in the organizations responsible for safety related activities.
3. If there is any reduction in the human resources assigned to safety related activities, either in its size or its qualification.

Items that should be covered in the evaluation includes: Justification of change, how it will affect to other organizations (clients), documents affected, training needs, planning, reassignment of responsibilities, control of subcontracted activities, communication of change, etc. Evaluations are kept as internal documents but are subject to nuclear safety regulator audit upon request.

Annex 30
INTEGRATED STAFFING PLAN TO REPLACE RETIRING WORKFORCE

Applies primarily to Management Issue No. 5

1. OVERVIEW

For this operating organization, employee average age is more than 46 years, with average employee tenure of 17 years. Furthermore, based on trends and work force demographics it's anticipated that between 30-35 percent of current employees will be eligible for full retirement benefits during the next five years. This has created a demographic "bubble" in the workforce with near-term operational implications.

2. KEY ELEMENTS

To provide better planning intelligence, most employees voluntarily participate in an on-line program to self-identify their anticipated retirement age. This allows the operating organization to create and update a workforce-staffing model that predicts future staffing levels and drives resultant recruiting efforts and long-lead training programs so that company operations are not adversely impacted. The Integrated Staffing Plan (ISP) is the standardized management tool derived from this modeling process. The ISP is best described as having the "right people at the right time with the right skills to do the job at the right cost." The foundation of the ISP is a work force plan with a five-year planning horizon.

The ISP is based on extensive industry benchmarking of appropriate staffing levels across the organization's major divisions. Together with anticipated attrition forecasts, the ISP provides needed workforce planning intelligence to make an orderly transition through this unique demographic shift in the organization's workforce.

Annex 31
A WORKING PARTNERSHIP TO CREATE A HIGHLY QUALIFIED NUCLEAR WORKFORCE

Applies primarily to Management Issue No. 5

1. OVERVIEW

In this Member State, a University Network of Excellence in Nuclear Engineering (UNNE) has been created. It is a unique working partnership among a consortium of universities and nuclear industries to invigorate university based research and create a highly qualified workforce for the national nuclear industry.

2. KEY ELEMENTS

In this Member State there is an acute shortage of nuclear scientists and engineers to mitigate the forthcoming retirement of nuclear experts. No single university in the country is willing to justify the investment of the resources needed to set up accredited nuclear education and training programmes.

Thus, a group of universities with funding from the main nuclear energy companies in the country set up UNNE to foster an active R&D partnership amongst NPP operating organizations, research and regulatory agencies and UNNE, and to establish a sustainable supply of qualified engineers and scientists to meet the current and future needs of the national nuclear industry.

One of the main outputs of UNNE will be a course-based Masters degree programme in nuclear engineering, collectively offer by UNNE to reorient graduates of traditional programmes and to educate sponsored nuclear employees. With industry agreement each participant university selects an area of nuclear research of strategic importance to its plans, and industry members commit funds to create industry research chairs at each partner university in the agreed upon area. Funding is also set aside to support other UNNE researchers in targeted areas.

Scholarships will be available. Industry partners will provide full-time students work terms and employment opportunities.

Annex 32
KNOWLEDGE MANAGEMENT: DOCUMENTATION OF TACIT KNOWLEDGE

Applies primarily to Management Issue No. 5

1. OVERVIEW

This operating organization has developed, piloted, and begun deploying a process to capture the undocumented tacit knowledge of NPP personnel nearing retirement. Explicit knowledge is defined as knowledge that is specified in procedures or other plant documents, while tacit knowledge is the knowledge that plant personnel possess concerning their work that that is not included in such documents.

2. KEY ELEMENTS

This process - and associated tools and support - enable line managers to:

1. Identify critical "at risk" knowledge and skills, especially those associated with impending attrition.
2. Evaluate the risk associated with losing this critical knowledge and skills.
3. Develop, implement and evaluate action plans (documentation, mentoring, training, reengineering, sharing expertise, etc.) for managing this risk.

The organization requests all employees to provide an estimate of their retirement plans. This information is used as an input to the knowledge retention process. Organizational units estimate the uniqueness and criticality of the knowledge and skills of their workforce and determine where the risk of knowledge loss is greatest. For these positions, critical knowledge is inventoried and action plans developed to preserve and transfer it – or lessen the impact of its loss. Preliminary results suggest that the process effectively focuses attention and action planning on the most critical knowledge loss issues.

Annex 33
CAREER AND SUCCESSION PLANNING

Applies primarily to Management Issue No. 5

1. OVERVIEW

A key part of the integrated human resource management system of this NPP operating organization is a career and succession planning function.

2. KEY ELEMENTS

The career and succession planning system has the following benefits for the plant:

- More effective utilization of resources
- More flexible organizational operation
- Provide tools for people to better adapt to change
- Further develop loyalty and reinforce the organizational culture

The benefits for employees include:

- Improved job satisfaction
- Matching personal goals with those of the organization

Components of the career and succession planning system include:

- Planning successors for managerial and key technical positions
- Job progression/advancement without the need to transfer to a new job
- Identifying competencies needed for advancement, and providing training and other opportunities to develop these competencies.

Annex 34
RESOURCE POOL FOR FUTURE TOP MANAGERS

Applies primarily to Management Issue No. 5

1. OVERVIEW

This operating organization has set up a process for evaluating management potential in order to:

- Choose those managers capable of taking on a leadership role and later a strategic position.
- Anticipate the needs, to optimize personnel resources and to manage professional evolution.
- Offer recognition and motivation.
- Make a more efficient, objective, formalized and shared evaluation of potential.

2. KEY ELEMENTS

An employee's potential will be evaluated all along his or her career:

- first during the recruitment process.
- Then throughout the first three years in the company.
- And approximately every 5 years, at cross points between two jobs and when taking on new responsibilities.

Three areas are defined for evaluation, with three criteria in each area, as shown below:

Evaluation Areas	Criteria Associated with Each Area
Driving Force	Ambition, Energy, Dynamism
Intelligence in situation	Anticipation, Overview, Pertinence
Influential Behavior	Communication , Leadership, Charisma

Four contra indications are also evaluated:

- Exaggerated opportunism.
- Personal gain to the detriment of general interest.
- Lack of honesty and loyalty.
- Contempt for others.

The evaluation system uses precisely defined criteria and indicators to help the evaluators.

Annex 35
POOL OF TALENT FOR FUTURE MANAGEMENT POSITIONS

Applies primarily to Management Issue No. 5

1. OVERVIEW

This operating organization has developed a “pool of talent” as part of its integrated human resources system that will be available for assignment to future management positions. The drivers for this approach have principally been the potential for plant life extension and the upcoming retirement of the plant staff that were involved in commissioning.

2. KEY ELEMENTS

The human resources system of this NPP operating organization has identified - in view of the plant's potential life extension - that for the continuity of safe and reliable plant operation the stable competence of future management is vital. In order to meet this, the HR management has called out a "Pool of Talent" as part of the integrated plant HR system. Items included in this program are:

- Pooling of applicants for future management positions on either voluntary or superiors' recommendation basis.
- Comprehensive and thorough tests, including psychometric examinations and interviews of visions of the pool entries.
- A formal personal development program including management Knowledge and Skill improvements by means of formal as well as special training, coaching and mentoring.

This program will benefit both the plant and its employees. The plant is expected to use its human resources in a more efficient way, the organization will operate more flexibly, motivation and loyalty will increase, and an outstanding corporate identity will become recognizable.

At the same time, employees in the pool will experience opportunities for continuous and planned improvement of skills and competence, and an environment in which their ambitions develop, and their feeling of responsibility and commitment increases.

The plant, with this program is devoted to identify the talents of its personnel in order that it meets its current and future challenges, to produce electric energy in a reliable and safe manner.

Annex 36
NATIONAL ASSESSMENT OF NUCLEAR AND RADIOLOGICAL SKILL BASE

Applies primarily to Management Issue No. 5

1. OVERVIEW

Concern exists, in this Member State that a shortage of people with the skills needed to apply nuclear and radiological technology is developing. Prompted by assessment of the international situation by the OECD/NEA, a survey of the national nuclear skill base has been conducted through effective joint working between a number of Government departments, industry, academia and professional institutions.

2. KEY ELEMENTS

The ability to apply nuclear and radiological technology is essential for the continued operation of existing nuclear power stations (which currently make up approximately 23% of the national generating capacity), is essential to nuclear and radiological clean up, and is needed to support a wide spectrum of medical, research, development and manufacturing activity. Also a recent government review spoke of "good grounds for taking a positive stance to keeping the nuclear option open"; the availability of skilled people being key to such a policy.

The survey has identified that the health sector currently has a shortage of people with radiological skills and although the nuclear sector does not have an immediate overall shortage, a number of 'hot spots' exist in disciplines such as safety case production and radiological protection. Postgraduate education and apprentice training are also in a fragile state, raising concerns about future workforce development. Conservative estimates suggest that the sector will require around 50,000 recruits over the next 15 years, excluding potential demand from new build, equivalent to just under 60% of the current skilled population, and this demand must be satisfied from the wider engineering and physical science sector at a time when the 'disconnect' between the strengthening demand for graduates (particularly in highly numerate subjects) on the one hand, and the declining numbers of mathematics, engineering and physical science graduates on the other, is starting to result in skills shortages.

This report outlines measures that have been taken to quantify the problem, and sets out a number of recommendations to avert potential skill shortages in the future including:

- Promotion of the Skill Sector: Engineering and physical sciences are unpopular fields of study and career choices for young people; and nuclear and radiological technologies are unpopular choices in this unpopular field. Action to encourage more young people into these sectors is urgently needed.
- Underpinning of Essential Learning Pathways: The learning pathways required to develop the skills needed by the sector must be defined and a means devised of underpinning those pathways.
- Underpinning Education Institutions: The education and training institutions, colleges and establishments needed to service the above learning pathways must be identified and a means of ensuring their viability established.

Annex 37
NUCLEAR INFRASTRUCTURE SUPPORT

Applies primarily to Management Issue No. 5

1. OVERVIEW

The NPP operating organizations in this Member State have taken important steps to maintain the availability of human resources for the future.

2. KEY ELEMENTS

Goesgen NPP Switzerland (OSART Good Practice)

NPP operating organizations have developed co-operation with other organizations, participating and sponsoring technical and human related studies. This co-operation has supported the plants in maintaining an updated and knowledgeable staff, and achieving state of the art in several technical areas. This becomes more significant in face of the current and future nuclear changing environment, when possible cuts in generation cost, may affect the high standards necessary to maintain a healthy and safe nuclear power plant operation. Together with a university, the NPP operating organization is currently developing a study to assess safety awareness among plant management and staff.

The operating organization provides contributions to research and development, through its support of the following research institute programmes for: maintaining important infrastructures such as tools, hot laboratory, Proteus research reactor, reactor physics computer codes, material testing of radiation-exposed material. The plant frequently uses these as services and for training; it maintains technical expertise for the reactor technology by subsidizing chairs at technical universities. This specifically supports the development of young engineers.

Annex 38
CULTURE CHANGE AND MEASUREMENT

Applies primarily to Management Issue No. 6

1. OVERVIEW

This NPP operating organization determined that the culture needed to be improved in areas related to cooperation among business units, teamwork, employee accountability, coaching, and feedback processes. The organization has established a cultural health index to provide a structured way to obtain feedback (communication) from employees as to the extent to which these improvements have been realized.

2. KEY ELEMENTS

This operating organization established an initiative called STAR 7 which stands for strategic teamwork for action and results - with the "7" representing the companies seven core values (integrity, respect for the individual, accountability, teamwork, innovation and continuous improvement, honest communication and flexibility). Based on employee feedback, the process was strengthened by behavioralizing the company values through a list of some 20 specific Winning Behaviors which have been aligned with Winning Performance process.

In order to measure the effectiveness of culture change, the organization has developed measurement tools, based on statistical process control methodologies, entitled the Cultural Health Index (CHI) in order to measure the STAR 7 effort.

The CHI is an employee survey that is sharply focused on measuring four specific strategic outcomes in the cultural area. It measures:

1. the extent to which the Winning Performance process has become a way of life - the business savvy of the workforce,
2. the extent to which the Winning Behaviors have become a way of life,
3. the extent to which employees are challenged and excited about their work - an employee engagement measure
4. and the extent to which the organization has become an employer of choice.

The CHI process is a driver for performance improvement rather than a "feel-good" instrument. For example, using the 2001 CHI results, a gap analysis was conducted and targeted interventions designed to address shortcomings in the Winning Performance process.

Annex 39
INTERNAL COMMUNICATION SYSTEM RE-DESIGN

Applies primarily to Management Issue No. 6

1. OVERVIEW

Based upon the results of an IAEA OSART and other internal assessments, this operating organization re-designed its internal communication system. Among the weaknesses identified in the previous system were: excessive time spent by managers in meetings; communications from the bottom up were often unanswered, the length and volume of communications were overloading people, and responsibilities and decisions were concentrated at high levels in the organization. The re-designed system focuses on addressing these weaknesses; it relies upon the use of information technology and knowledge management tools.

2. KEY ELEMENTS

The re-designed communication system includes the following features:

- It obliges managers to apply efficient managerial techniques including delegation of authority, organization, and time management.
- The system is Information Technology (IT)-based and is compatible with both the existing plant IT system and planned improvements.
- Templates are provided to organize the optimal amount and quality of information in communications.
- The system ensures that appropriate feedback on communications is provided from managers to those responsible for work.

One of the main lessons learned from this project is the importance of continuing support from the highest level managers in the organization. At the beginning, they need to understand and support the goals of the project. This is the case because re-designing the communication system as described here has impacts on the culture of the organization, and all aspects of plant activities. Everyone in the organization needs to be convinced that this project will succeed, particularly if past efforts in improving communications have failed. Based upon the experience of others, a 20-30% improvement in efficiency is expected from this project.

Annex 40
EFFECTIVE COMMUNICATION

Applies primarily to Management Issue No. 6

1. OVERVIEW

Management has improved communication by involving plant personnel in improvement efforts and by keeping them well informed of objectives and problems.

2. KEY ELEMENTS

A number of initiatives have been introduced to improve communications between managers, employees, union representatives and contractors.

Communication between managers: rotation of managers and supervisors is effectively used for career development as well as for fostering an appreciation of the constraints and needs of other plant organizational units. A weekly department heads meeting allows each manager to identify one or more problems in his/her area. An attempt is made to resolve these problems during the meeting.

Communication with employees: a monthly plant newsletter is used to communicate personnel, department, plant, company and industry information. Managers and union personnel are assigned to act as reporters. Each department conducts weekly meetings to communicate important plant and company information to all members. Managers attend these meetings to maintain a dialogue with staff.

Communication with the employee's union: The plant manager and union steward meeting bi-weekly to discuss current concerns and future changes. Thus, management and union personnel gain a better understanding of each other's concerns, and changes in plant and company policies are implemented with fewer problems. Plant teams are established to recommend improvements in a number of areas. Both management and union have members on each team.

Communication with contractors: The plant manager, production and technical managers participate in orientation sessions for the contractor's supervisors when they are brought to do work at the plant. As part of the orientation, expected contractor performance in the areas of industrial safety, radiological and nuclear safety, personnel error reduction and housekeeping are discussed.

Annex 41
TEAMWORK AND COMMUNICATION

Applies primarily to Management Issue No. 6

1. OVERVIEW

This plant has been successful in achieving a high level of teamwork and effective communication. There has been a marked improvement in many areas, including equipment availability, outages, radiation exposures, personnel errors and forced outages.

2. KEY ELEMENTS

Plant work groups have developed and posted their own code of conduct in their work areas.

A current list of plant systems and assigned system engineers is conveniently available in an online database.

Management encourages suggestions from staff by acknowledgement, prompt resolutions and recognition of accepted suggestions.

Communication improvement efforts have encouraged constructive criticism and feedback from plant personnel, and include the following:

- Senior managers are available for direct contact with personnel through informal contacts in the plant, and also through scheduled, regulator lunches with small groups of employees. Management availability has been improved by focusing on efforts to reduce the number of management meetings.
- Annual meetings are conducted to communicate current plant goals and expectations while soliciting feedback and input.
- Weekly communication meetings are used to keep operators on shifts informed of activities in other areas of the plants.

A pro-active management style encourages managerial productivity. Efforts to minimize interruptions have improved the work routines of individual managers.

Morning plant status meetings are used to focus attention on plant goals for the day.

A training programme has been provided to all managers and first line supervisors. This training emphasized management skills, including development and fostering of teamwork.

Annex 42
ANNUAL SAFETY WEEK

Applies primarily to Management Issue No. 6

1. OVERVIEW

This NPP operating organization has developed an effective communication tool to periodically reinforce its messages about the importance of safety to both individuals and to the plant.

2. KEY ELEMENTS

The Plant holds a safety week each year in which all plant personnel participate. The week consists of training programmes, displays and involves staff in plant safety inspections. This programme promotes safety awareness and the improvement in overall safety standards. The campaign is divided into four elements.

Safety Displays consist of notices posted around the site promoting personal safety awareness. Last year posters declared, `carelessness leads to accidents', `stop and think before you act', `the cautious approach is the safe approach' and `complying with the safety regulations improves safety'.

Mass meetings are held where a combination of lectures, videos and slide shows are used to raise awareness of the seasonal safety requirements and to obtain the staff's commitment to their implementation. Staff are gathered for general safety, health and hygiene training. The programme varies from year to year based on the priorities determined by the Safety Management Team.

Subsection heads, trade union representatives, the fire chief and safety engineers form a number of teams. Each of the teams carries out a programme of assessments in predefined areas. At the end, the safety reports submitted by each team for each area are compared. Lessons are learned on safety awareness and a final summary report is submitted for action.

Trade union representatives are given the opportunity to promote a safety topic of their choice. The promotion results in the publishing of leaflets on the chosen topic that are circulated to staff.

This was identified as an OSART good practice.

Annex 43
COMMUNICATIONS AND RELATIONS WITH THE LOCAL COMMUNITY

Applies primarily to Management Issue No. 6

1. OVERVIEW

This NPP operating organization has improved its relations with the local community considerably, primarily through open and effective communications.

2. KEY ELEMENTS

A Civic Safety Committee has been formed to involve the local community in plant activities. External communication at this NPP has resulted in the 80% of the population supporting operation of the plant. The Civic Safety Committee composed both of civic members, such as local town majors, and professional employees of the plant is active in releasing publications and technical information in the region. The unique features of this committee are:

- The committee members have received detailed training about the plant.
- They are allowed to participate in safety evaluations.
- They are informed about plant events and the corrective actions taken following those events.
- All the members are qualified and have permanent badges, which allow permanent and unescorted access.

In addition, safety culture is the main message transmitted to the public by an excellently equipped Information Centre.

This was identified as an OSART good practice.

Annex 44
DEVELOPING AND IMPROVING HUMAN RESOURCE MANAGEMENT SYSTEMS

Applies to all Management Issues

1. OVERVIEW

The IAEA has supported a number of organisations which, by virtue of commissioning their first NPP's or because of other significant catalysts for change, have needed to develop/upgrade their HRM Systems to ensure that staff are objectively selected for positions, against defined job requirements and qualifications, and given the necessary training and motivation to perform satisfactorily in their roles.

2. KEY ELEMENTS

To achieve this, a model has been successfully developed and deployed by Agency experts, based on the following key elements:

- The experts engaged undertake a number of activities on behalf of the operating organisation to gain experience of its existing working practices, which are confirmed by further observations and informal discussions with staff at all levels in the organisation.

- A document review is conducted to determine the quality, and effectiveness, of existing HRM Policies and Procedures within the organisation

- Based on their experience and observations, the experts developed two questionnaires, which form the basis for structured interviews with selected personnel; to assess their knowledge of existing requirements and to determine those approaches that they believe would be most useful to them. One questionnaire is designed for Managers, the other for all other staff. A vertical selection of staff are interviewed, from senior management to craft personnel, including staff from the corporate organisation, the central support unit and plant personnel. The results obtained produced a high degree of consistency, giving further confidence in the approach adopted.

Draft recommendations are developed by the Experts, which are reviewed and refined by an 'End User' team, coached and facilitated by the Experts.

In parallel with these activities, presentations were given to key managers and selected personnel on their roles and responsibilities in Human Resource Management, to create a core of knowledge to enable further constructive debate on the issue to take place within the organisation.

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