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Establishing a Code of Ethics for Nuclear Operating Organizations

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ESTABLISHING A CODE OF ETHICS FOR NUCLEAR OPERATING ORGANIZATIONS

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FOREWORD

The IAEA Technical Working Group on Training and Qualification of Nuclear Power Plant Personnel (TWG-T&Q) recommended that the IAEA develop a publication on improving the performance of nuclear facility operating organizations through focusing on the ethics and professionalism of personnel at all levels of such organizations. This publication has been prepared in response to that recommendation. The TWG-T&Q made its recommendation based upon an understanding that an organization's code of ethics should apply to behaviours at all levels of the organization; from the Board Room to the working level. The TWG-T&Q also recognized that having the technical competencies related to nuclear technology is not enough to ensure that an operating organization's performance is at the high standards needed for a sustainable nuclear industry. The values and ethics of individuals and organizational units play an equally important role.

This publication is addressed primarily to senior managers of operating organizations, as experience has shown that, in order to succeed, such initiatives need to come from and be continually supported by the highest levels of the organization.

This publication was developed under an IAEA project in its 2006–7 programme entitled Achieving Excellence in the Performance of Nuclear Power Plant Personnel. The principal objectives of this project were:

— To enhance the capability of Member States to utilize proven practices accumulated, developed and transferred by the Agency for improving personnel performance and maintaining high standards, and
— To demonstrate how positive attitudes and professionalism, appropriate performance management, adherence to a systematic approach to training, quality management and the use of effective information and knowledge management technologies contribute to the success in achieving organization objectives in a challenging business environment.

The IAEA officer responsible for this publication was T. Mazour of the Division of Nuclear Power.

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CONTENTS

1. INTRODUCTION

1.1. Purpose of this publication

A code of ethics is a standard that governs and guides ethical behaviour for an organization of: its employees, and also of interactions between the organization and its external stakeholders.

This publication is intended to:

(1) explain the benefits for nuclear industry operating organizations of having a well functioning code of ethics,

(2) propose areas that should be considered for inclusion in a nuclear industry operating organization's code of ethics, and

(3) explain how to develop, implement and sustain such a Code.

This publication will explain the benefits of establishing a code of ethics for any organization, and will demonstrate that these benefits are even more important in the nuclear industry due to the potential safety, security and proliferation hazards unique to this industry. This publication is addressed primarily to senior managers of nuclear industry operating organizations, as experience has shown that, in order to succeed, such initiatives need to come from and be continually supported by the highest levels of the organization. An organization's code of ethics should apply to behaviours at all levels of the organization; from the Board Room to the working level.

This publication should be particularly useful for those nuclear industry operating organizations that are considering establishing a code of ethics. It should also be useful, for organizations that already have a code of ethics, as a source for benchmarking their practices. It is further intended to have relevance for other nuclear industry organizations; technical support organizations, research organizations, suppliers of nuclear technology equipment and systems, as well as nuclear regulators and governmental organizations. It is intended to be useful to and relevant for those Member States that are considering implementing a nuclear power programme.

1.2. Increasing emphasis on business ethics

Apart from legal/regulatory requirements, businesses in general have no recognized codes or standards which provide a benchmark for their conduct. Individual organizations therefore have to formulate their own values and define the way they intend to conduct their business. A code of ethics can serve as such a standard.

Formal business ethics programmes are relatively new. Although a handful of companies have had them for twenty to thirty years, the majority of business ethics programs are no more than a few years old. In the past 10 years there has been a significant increase in large and multi-national organizations that have codes of ethics and business conduct. In many Member States and particularly for multi-national organizations, having a code/policy on ethics is now considered one of the hallmarks of a well managed organization.

The following are some important reasons for having a code of ethics:

- It is considered to be an important part of good corporate governance
- It provides guidelines to employees on how to handle difficult situations that arise in the course of day-to-day business
- It can reassure customers, investors, suppliers, and even competitors about the integrity of the organization.
- Employees want to work for organizations they can trust and that make them proud of their work.

Some people suggest that there are no financial benefits to doing business ethically. However many senior managers argue there's a direct connection between ethics and the bottom line, and there are many examples where unethical, or perceived unethical, behaviour has had severe financial consequences for organizations and, in extreme cases, has led to collapse. In organizations there are many decisions to be made with multiple competing values and multiple competing stakeholders. Business ethics provides a process for addressing these competing priorities in a manner consistent with the organization's values.

Research published in the UK in 2003 indicated that those larger UK companies with codes of ethics in place for five or more years had financially out-performed similar companies without such codes. The study concluded that "having a code of ethics was the hallmark of a well-managed company." Similar results have been reported in the US. Another financial indication of the importance of ethical conduct is the growth of socially responsible investment (SRI). The rapid growth of the SRI market has encouraged business executives and Boards of Directors (BOD) to demonstrate they have effective policies and practices in place to address social and ethical issues related to their business activities. In the 1970's and 1980's the nuclear power industry had a very negative image with respect to SRI. However, with growing concerns regarding global warming and other environmental impacts of fossil-fuel sources of energy, there is now emerging an opportunity for nuclear power to demonstrate its benefits from an SRI perspective.

Public perception of corporate leaders remains persistently low. Recent, well publicized corporate misconduct by major, international companies has only added to negative public perception of corporate leaders. These events have resulted in greater pressure for BODs to monitor the way their organizations and partners do business. Members of BODs are increasingly aware of their potential liabilities regarding unethical and illegal actions of employees; whether these employees are senior managers associated with bribes, or working level employees making inappropriate use of their knowledge regarding sensitive technology and information.

When most Chief Executive Officers (CEOs) explain the value of ethics, they generally refer to something less tangible than money. In the view of some, it's their company's reputation. CEOs who have committed their corporations to a code of ethics have done so in the name of long term sustainability and fostering the health of their organizations. To them, having a code of ethics with an effective implementation programme is the minimum requirement for reputation management. Without such a programme a company is vulnerable because it has, or may be perceived as having, neglected to take business ethics seriously. Companies that aspire to be leaders in their industry, their community and their country, are the leaders in implementing and sustaining codes of ethics.

1.3. High ethical standards are particularly important in the nuclear industry

The environmentally benign aspects of nuclear power, compared to alternative energy sources are important to our society for sustainability. Nuclear power can contribute to the responsible use of natural resources and the abatement of climate change. However, nuclear industry operating organizations are also aware of the serious safety and proliferation hazards associated with nuclear facilities, the complexity of the technology, and of the importance of not violating the trust that society has placed in them. Thus, the only one way to do business as a nuclear industry operating organization; is with high ethical standards in all respects. The lifetime of nuclear facilities can be 60 years or more. Taking into account the management of spent fuel and radioactive waste, the period to consider is even longer. This makes the long term sustainability of nuclear industry operating organizations particularly important for society.

Figure 1 illustrates that a nuclear industry operating organization's culture and ethics provide the basic foundation for its management systems processes. The culture of the world's nuclear industry is that the operating organization is always responsible for the safety and security of its facilities, even if the implementation of some activities is delegated to others. Thus, the health and safety of its employees, subcontractors, and the public, as well as protection of the environment needs to be a fundamental basis for a nuclear industry operating organization. Figure 1 also illustrates the strong linkages between the leadership of the organization, its culture and ethics, and its management system. Top managers and leaders influence the culture and ethics of the organization in what they say, but even more importantly in what they do, and what they monitor regarding the organization's performance.

Figure 1. Culture and Ethics as the Foundation for a Management System.

The following are examples of the behaviours that are particularly important for nuclear facility operating organizations:

— Adopt a conservative, risk-based approach to decision making
— Always place safety before commercial gain
— Accept personal responsibility for own and others' safety
— Integrate safety and environmental considerations into business practices
— Ensure that there are effective mechanisms for communication between the Board and operational level managers in order that Board-level decision making is done with appropriate consideration of safety and environmental risks
— Communicate openly and honesty with regulators, employees and all other stakeholders
— Maintain a "blame-free" reporting culture that encourages full reporting of unsafe or unethical practices, incidents and near misses, and that uses this information to continually improve the organization
— Openly share operating experience information with other industry operating organizations, including benchmarking, and make effective use of the experiences of others, while respecting commercial confidentiality
— Participate objectively and honestly in local, national and global discussions and policy making processes regarding energy supply decisions
— Bribery and corruption are not tolerated at any level, or in any area of the organization.
— Materials, technology, and information regarding nuclear activities are not illegally sold or distributed, or otherwise misused.
— Being a good neighbour to, and supporter of, the local community, including advising them of measures taken to protect their health and safety, and the local environment.

All of these behaviours need to be based upon the values and ethics of the organization.

The following two Sections of this publication suggest an approach to developing and implementing a code of ethics for nuclear industry operating organizations, based upon lessons learned from those organizations that have been successful in sustaining a meaningful code of ethics.

2. DEVELOPING A CODE OF ETHICS

Each organization needs to develop its own unique code of ethics based upon its core values; for nuclear industry operating organizations these values should specifically include those unique aspects related to nuclear, radiation, and safety, environmental and proliferation concerns.

For those nuclear industry operating organizations without a code of ethics, there are proven ways to go about developing such a code. These lessons learned are summarized in the eight steps below:

(1) Find a champion for this effort

It is critical to the success of this effort that someone at the top of the organization — the BOD, the CEO, or other members of the senior executive — be prepared to drive the introduction and implementation of a business ethics policy.

(2) Get endorsement from the Chairman and the Board

Corporate values and ethics are matters of governance. The Board needs to be enthusiastic not only about having such a policy but also about receiving regular reports on its operation. They

should also make it clear that they understand that it also applies to them and to the executives whom they oversee. The BODs of most nuclear industry organizations have developed vision and mission statements indicating the organization's principal purposes and plans for future direction. Some include in this vision what their policies are with respect to fairness, honesty and service to their stakeholders. Through developing a code of ethics, the BOD and company executives can visibly demonstrate their commitment to the values and ethics of the organization.

(3) Identify clear roles and responsibilities at all levels regarding the development, implementation, and sustainability of the organization's ethics policy

This should address not just the champion for these efforts, but all others with related responsibilities, including executive level responsibilities for monitoring and reporting to the Board, responsibilities for communicating and interpreting the Code, down to expectations for employees at the working levels of the organization.

(4) Develop a 'where we want to be' framework

Use a framework which addresses issues as they affect different stakeholders of the company. The usual ones are: shareholders, employees, customers, suppliers, and local/national communities. ***Appendix A provides the recommended minimum content for a code of ethics for nuclear industry organizations. This minimum content has been developed by the IAEA Secretariat along with inputs from selected nuclear industry managers, based upon a review the codes of ethics from a number of nuclear industry organizations.*** Appendix B provides links to codes of ethics for some nuclear industry organizations, while Appendix C provides links to business ethics sites.

(5) Using framework from step 4 above, find out where you are now and what ethical issues are important to employees and other stakeholders

Merely endorsing a standard code or copying that of another is not recommended. It is important to find out on what areas employees and other stakeholders need guidance, and consider important. Appendix D provides information on how to conduct such an assessment. This Appendix reflects the self-assessment culture that is expected for nuclear industry organizations.

(6) Produce a draft Code based upon the 5 steps above

Existing policies, for example on giving and receiving gifts or the private use of company software, should be reviewed and incorporated as appropriate. Guidance should also be included on what 'doing it right' looks like in the nuclear industry.

(7) Review/Validate the draft Code

This review/validation should be done with a sample of employees drawn from all levels and different locations, as well as other selected stakeholders. It may be useful to involve an external organization to facilitate in this regard to ensure an objective review.

(8) Issue the Code and make it known

Publish and send the Code to all employees. State publicly that the organization has a Code and implementation programme that covers the whole company. Put it on your web site and send it to partners and other stakeholders. Develop and carry out training and awareness programs. An implementation plan, or at least an overview of the plan, should be distributed with the Code. This implementation plan should be developed in parallel with developing the Code. Section 3, that follows, provides guidance regarding this implementation plan.

3. IMPLEMENTING A CODE OF ETHICS

Developing a code of ethics using the steps described in Section 2 is a necessary but not sufficient condition for success. In order to make this code a living part of a nuclear industry organization's way of doing business, it is necessary to have an equally structured and rigorous implementation plan.

3.1. The implementation plan

(1) Endorsement
Make sure that the Code is introduced with a statement of the company's values and endorsed by the Chairman, CEO or other appropriate executive given the organization's structure.

(2) Integration
Publish the strategy for integrating the Code into the organization's processes at the time that it is issued. It may be better not to wait until all implementing procedure changes have been made before publishing the Code, otherwise momentum may be lost. A timetable for making needed changes in implementing procedures should be published. In order to achieve effective implementation of the Code throughout the different levels and areas of the organization, the Code needs to be put into the terminology used by these levels of the organization. It is not sufficient to distribute the Code to all employees without further explanation or interpretation. Some nuclear industry organizations have found the use of case studies or group discussions of practical examples relevant to that area and level of the organization to be an effective means to make the Code relevant, as well as to provide the opportunity for employees to discuss questions with their supervisors and peers (see Appendix E for examples of ethical dilemmas in nuclear industry organizations that may be suitable for such purposes).

(3) Circulation
The development of the Code included a step for initial circulation. This step is intended to include its continuing circulation, after review and development. Decide how the Code will be distributed and communicated on a continuing basis to employees, regulators, customers, suppliers and other interested stakeholders.

(4) Personal Response
Give all staff the personal opportunity to respond to the content of the Code. An employee should know how to react if he or she is faced with a potential breach of the Code or is in doubt about a course of action involving an ethical choice, and how to raise matters not covered by it. Depending on the organization's culture, it may be appropriate to require employees and/or contractors to confirm in writing their knowledge of, and commitment to the Code.

(5) Contracts
Consider making adherence to the Code obligatory by including reference to it in all contracts of employment and linking it with disciplinary procedures. Consider also making compliance with the Code a requirement for suppliers, partners, and sub-contractors.

(6) Regular review
Have a procedure for regular review and updating the Code, consistent with other procedures in the organization

(7) Promotion/Compliance

Considerable thought and planning needs to go into the methods to be used for both promoting the positive aspects of the Code as well as for enforcement and sanctions. Then effective methods for communicating this information to employees need to be implemented. Senior managers need to take on the areas of promotion and compliance for a code of ethics to really work. The following are methods for promoting implementation of an ethics code that some nuclear industry organizations have found to be effective. These methods, if adopted should be integrated with other management system initiatives for reporting safety issues. If such methods are to be adopted, they should be considered in the context of the culture of the organization, in order to ensure their effectiveness:

- An ethics committee to provide a focal point in the organization for review and discussion of ethical issues
- Ethics ombudsmen in the organization whom employees can contact in a anonymous way to discuss their ethics concerns and dilemmas
- Ethics hotlines where employees and (perhaps) other stakeholders can call to both anonymously report possible violations of ethics codes, and also seek advice regarding interpretation of the Code.
- Contracting with an independent organization for some tasks such to provide independent assessment of compliance with the Code, or to operate an ethics hotline.
- A "whistleblower" provision (A whistleblower is one who reports a problem or violation to the authorities; especially, an employee or former employee who reports a violation by an employer).
- Establishing and publicizing enforcement policies, and demonstrating their fair and uniform application.

The common objective of these methods is to build trust and understanding of employees (as well as other affected stakeholders) that the code of ethics is more than words on paper; that it truly represents the values and ethics of the organization, and particularly those of its most senior managers and executives.

One area that should be particularly anticipated in promotion of the ethics code is the need for a whistleblower provision. If an employee has brought up an ethics concern to his/her supervisor and no action has been taken, or if the supervisor is the source of an ethics concern, what protection is provided to employees who take their concerns to others inside (or even outside) the organization.

(8) Leadership and training

Practical and relevant examples of issues raised by the Code should be included in both initial and continuing training programmes for personnel at all levels of the organization. BOD and senior executive levels should be included in this training, both as participants in exercises designed to challenge their application of the Code, as well as facilitators for training sessions of their direct reports and others. Training should focus on instilling acceptable practices and ethical responsibility in top-level executives, management and other professionals based upon the standards and values needed for nuclear industry organizations.

Experience has shown that such solutions are not easily implemented because they rely not only on guidance regarding ethically correct actions but also real experiences in which decision makers are challenged to make tough decisions. It is difficult to create teaching tools, such as facilitated decision-making scenarios organizations (Appendix E provides ethical dilemmas in nuclear industry organizations that may be useful in this regard). Shaping

character and acquiring the organization's values takes place over time primarily through ongoing mentorship, which may be lacking in many organizations.

(9) Terminology and language considerations
Ensure that appropriate wording is used in the Code. Terms commonly used in the Board Room may be unfamiliar to those at the working level In addition, depending on the involvement of outside contractors/suppliers, the Code may need to be translated into other languages.

(10) Business reports
Reproduce or insert a copy, or extracts, of the Code in company publications (e.g., Web-site and annual reports) so that shareholders and a wider public know about the company's position on ethical matters.

3.2. Sustaining a code of ethics

One of the most important conditions for sustainability of a code of ethics within a nuclear industry operating organization is the practical demonstration by managers of its principles in their day to day activities; that they themselves comply with the Code and that they support all of the principles and rules it contains. Non-compliance with the Code by managers is the one thing that can be most damaging to the sustainability of a code of ethics. In some ways, non compliance with the Code by managers is even worse than having no Code at all in an organization and should therefore be strictly avoided.

Management should promote the acceptance and sustainability of a code of ethics by providing appropriate training and coaching and by rewarding and supporting those staff members who demonstrate compliance with the Code. Equally important to sustainability are effective measures to discourage inappropriate behaviours.

In general, a code of ethics within a nuclear industry organization will become real and sustained if it becomes part of day to day activities. This also includes regular communications by senior managers with staff and stakeholders through mechanisms such as company publications, intranet, and external web sites.

A nuclear industry operating organization should reflect the importance of ethical behaviour by including criteria related to ethical practices in the performance objectives and criteria used for assessments in all areas of the organization. These ethical behaviour criteria will be most effectively applied if they are integrated into the existing assessment structure, rather than being a separate, stand-alone area. In other words, compliance with the code of ethics should be assessed in the same way as any other nuclear industry business process or objective. As indicated earlier, leadership regarding ethical behaviour needs to come from the highest levels of the organization. Thus, it is important that the results of assessments regarding compliance with a code of ethics are regularly reported to this level of the organization. It is also important that employees see that decisions regarding improvements in the Code are made and communicated from the highest levels of the organization.

The IAEA has recently revised its safety guidance on management to address an integrated approach to managing safety, environmental protection, production, financial and other critical aspects of a nuclear facility's operations (IAEA Safety Guide GS-G-3.1, *Application of the Management System for Facilities and Activities*). Section 6 of this Safety Guide provides guidance regarding measurement, assessment, and improvement that should be

considered in developing and conducting assessments regarding compliance with a code of ethics.

As indicated in Section 3.1 of this publication, some nuclear industry organizations have found it useful to use the following types of measures as tools to help sustain their ethics codes:

— An ethics committee to provide a focal point in the organization for review and discussion of ethical issues
— Ethics ombudsmen in the organization whom employees can contact in a anonymous way to discuss their ethics concerns and dilemmas
— Ethics hotlines where employees and (perhaps) other stakeholders can call to both anonymously report possible violations of ethics codes, and also seek advice regarding interpretation of the Code.
— Contracting with an independent organization for some tasks such to provide independent assessment of compliance with the Code, or to operate an ethics hotline.
— A whistleblower provision.
— Establishing and publicizing enforcement policies, and demonstrating their fair and uniform application.

The appropriateness of such measures is very much dependent upon the culture and structure of the organization. However, it is clear that employees (and other affected stakeholders) will carefully observe how the organization responds to ethical dilemmas. These observations and their discussions with other stakeholders will have the greatest impact on the extent to which stakeholders trust and believe in the ethics code.

3.3. Specific considerations for organizations initiating new nuclear power programmes

The following are examples of ethics considerations specifically related to initiating new nuclear power programmes:

— It should be clear to all stakeholders that strong ethics are an essential element in the suite of defenses that ensure the safety of nuclear facilities.
— Unethical, or perceived unethical, behaviour could have severe financial consequences for a new nuclear power programme and might even lead to its failure (one example was a nuclear power project in an Asian country, which was completed, but never operated, at least partially due to public concerns about alleged corruption). The Extractive Industries Transparency Initiative (EITI) supports improved governance in resource-rich countries through the verification and full publication of company payments and government revenues from oil, gas, and mining. An effort to extend the EITI approach to NPP projects could be of value (see http://www.eitransparency.org for additional information regarding this initiative).
— Having a code of ethics reflects the degree of maturity of the program when dealing with reputable international firms and suppliers that share the same values.
— A visible and effective ethics policy could serve to increase public confidence in the nuclear energy program in the country of origin as well as in neighbouring countries in the region.
— The development of a nuclear power program takes ten years or more and involves very large and numerous contracts with international, national and local companies, and

significant interaction with government and regulatory bodies. Having a code of ethics is one measure to help ensure the integrity of the program.

— For Member States that are considering implementing a nuclear power program, it would be beneficial to establish a code of ethics at the earliest stages of the programme, and to include business ethics in the curriculum for nuclear industry education and training programmes (for example, Jordan is planning to include business ethics in the curriculum for the nuclear engineering programme it is establishing, as part of its efforts to prepare for the possibility of nuclear energy in its future energy mix).

4. EXAMPLES OF ETHICAL DILEMMAS IN THE NUCLEAR INDUSTRY

Experience has shown that, even in organizations that have clear codes of ethics, there are situations for which application of this Code is a challenge. Appendix E provides examples of ethical dilemmas that individuals in a nuclear industry organization might face. As these examples illustrate, ethical dilemmas for individuals in nuclear industry organizations are often the result of fear, greed, peer or political pressure, and/or financial pressures. They may also be the result of poorly thought out decisions or those made for the sake of expediency.

Ethical dilemmas such as those in Appendix E could be of value to nuclear industry organizations to use for purposes such as for:

— practical training of new employees
— work group discussions
— refresher training
— facilitated training of managers and supervisors
— Board Room discussions

5. RELATIONSHIP BETWEEN AN ETHICS POLICY AND OTHER PROGRAMMES/POLICIES OF A NUCLEAR INDUSTRY OPERATING ORGANIZATION — RELATED IAEA PUBLICATIONS

As was shown earlier in this publication, the ethics and culture of an organization have an influence on all aspects of its activities. For a nuclear industry operating organization, the development and implementation of an ethics policy is particularly closely related to the following areas:

— Conduct of operations at nuclear facilities
— Management systems including quality management and safety culture
— Human resource management including human performance improvement
— Training and qualification of personnel
— Open and transparent decision making and communication methods
— Physical protection and control of nuclear materials
— Experience feedback and corrective action systems.

Appendix F provides examples of IAEA publications in the above areas. A review of these publications indicated that none of them provide explicit guidance or lessons learned regarding the establishment or implementation of an ethics policy for nuclear industry operating organizations.

6. GLOSSARY

The following are brief definitions/descriptions of some of the terms used in this publication that either may not be familiar to some readers, or that have different meanings in other contexts.

A **code of ethics** is a standard that governs and guides ethical behaviour for an organization of its employees, and also of interactions between the organization and its external stakeholders.

Accountability is a concept in ethics with several meanings. It is often used synonymously with such concepts as answerability, responsibility, blameworthiness, liability and other terms associated with the expectation of account-giving. As an aspect of governance, it has been central to discussions related to problems in both the public and private (corporate) worlds**.**

Blame-free culture is an open and fair culture in an organization where errors and near misses are reported, studied and learned from. (some prefer the term "Blame-Tolerant Culture")

Bribery is attempting to give someone money, gifts or something else that they desire, so that they will do something for the briber, usually something dishonest or unethical.

Business ethics is the branch of ethics that examines ethical rules and principles within a commercial context; the various moral or ethical problems that can arise in a business setting; and any special duties or obligations that apply to persons who are engaged in commerce.

Conflict of interest A person has a conflict of interest when the person is in a position of trust which requires him/her to exercise judgment on behalf of others (people, institutions, etc.) and also has interests or obligations of the sort that might interfere with the exercise of his/her judgment, and which the person is morally required to either avoid or openly acknowledge.

Corruption is defined as the misuse of entrusted power for private gain.

Corporate responsibility refers to fulfilling the responsibilities or obligations that a company has toward its stakeholders.

Corporate social responsibility can be understood in terms of corporate responsibility, but with greater stress laid upon the obligations a company has to the community, particularly with respect to charitable activities and environmental stewardship.

Corporate compliance is that process by which an organization ensures that it complies with local and national/international rules and regulations.

Corporate citizenship is the business strategy that shapes the values underpinning a company's mission and the choices made each day by its executives, managers and employees as they engage with society.

Corporate sustainability is a business approach to create long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental and social developments.

Dow Jones Sustainability World Indexes (DJSI World) track the performance of the top 10% of the companies in the Dow Jones Global Index that lead the field in terms of corporate sustainability.

Ethics is one of the five major branches of philosophy, which attempts to distinguish that which is right from that which is wrong. Ethics differs from morality in that morality allows more leeway for individual interpretation whereas ethics tend to be based more on national/international norms.

Global compact. In an address to the World Economic Forum on 31 January 1999, United Nation Secretary-General Kofi Annan challenged business leaders to join an international initiative – the Global Compact – that would bring companies together with UN agencies, labor and civil society to support universal environmental and social principles.

Global Reporting Initiative (GRI) is a long-term, multi-stakeholder, international process whose mission is to develop and disseminate globally applicable *Sustainability Reporting Guidelines.* A number of nuclear industry organizations use the GRI Guidelines as part of their annual reports to stakeholders.

Harassment refers to a wide spectrum of offensive behavior. When the term is used in a legal sense it refers to behaviors that are found threatening or disturbing, and beyond those that are sanctioned by society.

Organizational culture is a mixture of an organization's traditions, values, attitudes and behaviours. In short, 'the way things are done around here'. Different organizations can have very different cultures.

Social responsibility is a doctrine that claims that an entity whether it is state, government, corporation, organization, or has a responsibility to society.

Stakeholder A person, group or organization that can affect or is affected by an organization's action or decision.

Whistleblower is one who reports a problem or violation to the authorities; especially, an employee or former employee who reports a violation by an employer.

Appendix A
RECOMMENDED MINIMUM CONTENT FOR A CODE OF ETHICS FOR NUCLEAR INDUSTRY OPERATING ORGANIZATIONS

This appendix contains guidance on the contents of a Code of Ethics. It is noted that in some cases organizations choose to address particular aspects of this appendix by other means, including additional policies, e.g. a Health & Safety Policy, a Human Resources Policy. However, if this is done, it is still considered advisable, in order to emphasize the importance of ethical behaviours, to consolidate those aspects related to ethics into a complementary ethics policy.

Preamble to introduce the code

(The preamble could begin with a link to a statement about the particular company's core purpose/mission statement/ethics charter, etc., such as the following) A key/core function/purpose of this organization is to improve life for present and future generations through providing a safe, reliable and sustainable supply of energy at a fair price. To live up to this promise, we:

- Contribute to the responsible use of natural resources and the abatement of climate change
- Actively engage with our employees and stakeholders to continually improve our safety, environmental and social performance
- Share high standards of business ethics and integrity with all of our business partners
- Report openly on all aspects of our performance

(The Code should emphasise here those ethics considerations that are particularly pertinent to nuclear activities, such as the following) We recognize that the environmentally benign aspects of nuclear power, compared to alternative energy sources are important to our society for sustainability. However, as a nuclear industry (operating) organization we are also aware of the trust that society has placed in us to ensure that the risks associated with operating nuclear power plants are well managed and kept extremely low. Thus, our values are simple. We believe there is only one way to do business as a nuclear industry (operating) organization; with honesty, integrity and fairness. The lifetime of our facilities can be 60 years or more. This makes the long term sustainability of our organization particularly important for society.

(Commitment can be demonstrated in a number of ways such as a cover letter or introductory video, with words such as the following). Our Board of Directors and Executives of the Company (use appropriate terminology) are committed to our Code of Ethics. We have demonstrated this commitment through the participative approach that was taken to develop this Code. We will continue to demonstrate our commitment to this Code through our focus on its implementation and through our continual monitoring of the ethics of our employees and business partners. The remainder of this Code provides the standards of ethics that we expect of ourselves and this organization. We charge you with providing us feedback if and when you see that we are falling short in achieving these Standards. Like safety, ethics is not a "sometimes" proposition. Ethics is a constant that impacts everything we do. Honesty, integrity and fairness are absolutely essential in everything we do.

(The following is the recommended minimum content for a code of ethics for a nuclear industry operating organization):

Our ethics commitment is embodied in the following

(For each of the following sub-sections and bullets organisations will need to expand and quantify these rules to ensure clarity and understanding at all levels in the organisation e.g., threshold for the value of gifts)

We regard the **health and safety** of our employees, subcontractors, and the public, as well as protection of the environment to be a fundamental basis for our operations. Thus, we will:

- Adopt a conservative, risk-based approach to our decision making
- Always place safety before commercial gain
- Accept personal responsibility for our own and others' safety
- Strive for continual improvement in safety awareness and performance
- Integrate safety and environmental considerations into our business practices
- Strive to ensure that labour relations do not compromise safety
- Ensure that we have effective mechanisms for communication between the Board and operational level managers in order that Board-level decision making is done with appropriate consideration of safety and environmental risks

Openness and honesty are particularly important for our organization's success. Thus, we will:

- Provide the Board of Directors, executives, senior managers, and supervisors only with accurate, complete, objective, relevant and timely information.
- Communicate openly and honesty with regulators, employees and all other stakeholders
- Avoid deception of stakeholders, making public statements only in an objective and truthful manner
- Maintain a "blame-free" reporting culture that encourages full reporting of unsafe or unethical practices, incidents and near misses, and that uses this information to continually improve the organization
- Openly share operating experience information with other industry operating organizations, including benchmarking, and make effective use of the experiences of others, while respecting commercial confidentiality
- Participate objectively and honestly in local, national and global discussions and policy making processes regarding energy supply decisions

Bribery and corruption will not be tolerated at any level, or in any area of the organization. Thus, we will:

- Ensure that materials, technology, and information regarding nuclear activities are not illegally sold or distributed, or otherwise misused.
- Neither accept from, nor give gifts or payments to business partners or other outside parties
- Not utilize company resources (i.e., money, materials, information, and employee time) for personal gain or use.
- Avoid conflicts of interest, and avoid or disclose situations where there could be perceived conflicts of interest in personal and professional relationships
- Purchase products and services based on merit and the company's overall business needs

Our organization has a **social responsibility** to our employees, neighbours and other stakeholders. Thus, we will:

- Be a good neighbour to, and supporter of, the local community
- Not sacrifice the long-term future of our organization for short-term financial gains
- Deal with customers, contractors and suppliers in an ethical manner, and expect the same from them
- Respect people and treat them fairly, including not tolerating harassment, intimidation, or discrimination
- Select personnel for positions, at all levels of the organization, based solely on who is best suited for the job according to their competency and professional qualifications
- Recognize everyone's contributions to the organization achieving its objectives
- Maintain a good work environment for both employees and contractors

Personal behaviours of individual members of the organization directly impact perceptions of the organization's ethics. Thus, we will:

- Recognize the responsibility of all supervisors, from the Board-level to first line, to be role models for ethical behaviour, and to enforce ethical behaviour in their work groups
- Comply with all laws and regulations, and report actual or perceived violations by others
- Treat everyone with respect
- Undertake only those tasks/activities for which we are competent
- Not compromise professional judgment because of business pressures
- Maintain appropriate fitness to perform assigned tasks
- Behave outside the workplace in a manner that reflects well on the organization
- Maintain appropriate loyalty to the organization
- Be open to proposed organizational/business changes using professional experience to assist in objectively assessing the risks and benefits of such changes
- Work effectively as a part of teams, both within and across organizations
- If supervisors, recognize and reward superior performance and also recognize and address substandard performance
- Protect the confidentiality of information and intellectual property
- Accept responsibility and accountability for own actions and decisions.

Implementation of this Code is an ongoing priority of the Board and executives of the company. The CEO is the Board representative responsible for monitoring implementation. On a regular (specified) basis a report will be presented to the Board regarding implementation of the Code.

Appendix B
LINKS TO CODES OF ETHICS FOR SOME NUCLEAR INDUSTRY ORGANIZATIONS ACCESSIBLE ON THE INTERNET

Full Name of the Operator	Country	Ethics Code available on
AMEREN	USA	www.ameren.com
British Energy	UK	www.british-energy.co.uk
CHUBU ELECTRIC POWER CO.,INC.	Japan	www.chuden.co.jp
CZECH POWER COMPANY , CEZ a.s.	Czech Republic	www.cez.cz
DOMINION GENERATION	USA	www.dom.com
DTE Energy	USA	www.dteenergy.coml
DUKE POWER CO.	USA	www.duke-energy.com
EDISON INTERNATIONAL	USA	www.edison.com
ELECTRICITE DE FRANCE	France	http://collectivite.edf.fr
ELECTRABEL M. V. NUCLEAIRE PRODUKTIE	Belgium	www.electrabel.com
ENEL - SOCIETA PER AZIONI	Italy	www.enel.it
Entergy	USA	www.entergy.com
ESKOM	South Africa	www.eskom.co.za
FORTUM POWER AND HEAT OLY GENERATION	Finland	www.fortum.com
FLORIDA POWER & LIGHT CO.	USA	www.fplgroup.com
HYDRO QUEBEC	Canada	www.hydroquebec.com
IBERDROLA, S.A.	Spain	www.iberdrola.es
KEPCO/KHNP	Republic of Korea	www.kepco.co.krl
OPG Canada	Canada	www.opg.com
Progress Energy Corporation	USA	www.progress-energy.com
RWE AG	Germany	www.rwe.com
Slovenske elektrarne	Slovakia	www.seas.sk
TENNESSEE VALLEY AUTHORITY	USA	www.tva.gov
TEOLLISUUDEN VOIMA OY	Finland	http://www.tvo.fi
TXU	USA	www.txu.com
Vattenfall	Sweden	www.vattenfall.com

Appendix C
LINKS TO SITES RELATED TO BUSINESS ETHICS

(These links are provided as additional information regarding business ethics organizations and issues, primarily outside the nuclear industry. Thus, they complement the information provided in Appendix A)

Association for Practical and Professional Ethics (United States: Indiana University)
http://www.indiana.edu/~appe/

Australian Business Ethics Network (Australia: RMIT University)
http://www.rmit.edu.au/

BellSouth
http://ethics.bellsouth.com/

Business and Social Responsibility (Russian Federation – in Russian Language)
http://www.business-ethics.ru/

Business Ethics Institute of Malaysia
http://www.beim.org.my

Business Ethics Magazine (United States)
http://www.business-ethics.com/

Business for Social Responsibility (United States)
http://www.bsr.org

Caux Round Table (United States)
http://www.cauxroundtable.org/

Center for Applied Ethics (Canada: University of British Columbia)
http://www.ethics.ubc.ca/

Center for Ethical Business Cultures (United States)
http://www.cebcglobal.org/Default.htm

Cercle européen des déontologues (France) – Site in French only.
http://www.cercle-ethique.net/

Corporate Governance (United States)
http://www.corpgov.net/

Corporate Social Responsibility Europe (Belgium)
http://www.csreurope.org/

Ethical Corporation Magazine (United Kingdom)
http://www.ethicalcorp.com

Ethics Institute of South Africa (South Africa)
http://www.ethicsa.org/

Ethics Officer Association (United States)
http://www.eoa.org

EthicsWorld
http://www.ethicsworld.com/index.php

European Business Ethics Network (The Netherlands)
http://www.eben.org/

European Corporate Governance Institute (Belgium)
http://www.ecgi.org/

Georgetown Business Ethics Institute
http://www.msb.edu/prog/gbei/

Government Accountability Project (United States)
http://www.whistleblower.org/

Hong Kong Ethics Development Centre (Hong Kong) – Site in Chinese and English
http://www.icac.org.hk/hkedc/txt_eng/about1.htm

Independent Commission Against Corruption (Hong Kong) – Site in Chinese and English
http://www.icac.org.hk/

Institute for Global Ethics (International)
http://www.globalethics.org/

Institute of Business Ethics (United Kingdom)
http://www.ibe.org.uk/

integrityworks (International)
http://www.integrityworks.com/

International Society of Business, Economics and Ethics (United States)
http://www.isbee.org/

Merck & Co., Inc.
http://www.merck.com/about/cr/policies_performance/social/ethicalpractices.html

Motorola
http://www.motorola.com/code/code.html

Navran Associates 2, Inc.
http://www.navran.com/

Organisation for Economic Cooperation and Development (International) – Site in English and French
http://www.oecd.org/

Society for Business Ethics (United States)
http://www.societyforbusinessethics.org/

Society of Corporate Compliance & Ethics
http://www.corporatecompliance.org/index.htm

The Defense Industry Initiative on Business Ethics and Conduct (United States)
http://www.dii.org/

Transparency International (Colombian chapter– Site in Spanish only)
http://www.transparenciacolombia.org.co/

Transparency International (German chapter – Site in German only)
http://www.transparency.de/

Transparency International (U.S. chapter)
http://www.transparency.org/

West African Network on Business Ethics (Nigeria)
http://general.rau.ac.za/ben-africa/Newsletter/wanethics.htm

World Bank Institute
http://www.worldbank.org/wbi/

Zicklin Center for Business Ethics Research (United States: Wharton School of Business)
http://www.zicklincenter.org/

Appendix D
UNDERSTANDING THE PRESENT — PROVIDING A BASELINE FOR THE ESTABLISHMENT AND ENHANCEMENT OF A CODE OF ETHICS

Ethics, as defined in the Glossary, is to distinguish "that which is right from that what is wrong". That which we consider to be "right" will be determined by our values. Values guide behaviours and will serve as a basis for the choices we make in various situations.

Nuclear industry organizations that aim at developing a code of ethics will strive to instil the values that will promote the desired behaviours in the organization. However, the members of the organization will already have developed a set of values, some of which may be in line with the desired values and behaviours and some that may be counter-productive to the desired ethics of the organization. Thus, for the implementation of an ethics program to succeed organizations need to be aware of where they are today and in which areas they need to change and improve in order to reach a desired state. Also, to understand the degree of concordance or dissonance in values vertically (between managers and staff), and horizontally (between employees and groups of employees) within the organization. For these purposes there is a need to make an assessment of the present situation.

The following is guidance on the steps to take and what type of methods that can be used when performing such an assessment. This guidance is consistent with the self-assessment culture that is expected of nuclear industry operating organizations.

Performing an assessment

Establishing an assessment team

The assessment should be carried out by a designated team representing the different levels and functions of the organization. Included in this team should also be a specialist with a background in the behavioural sciences, who is familiar with how develop and apply the methods to be used, as well as how to carry out the analysis of results (including statistical analysis) and their interpretation. The assessment team should receive training in how to develop the assessment tools and the steps to consider in the assessment process.

Assessment methods

The methods that have been applied to gather this type of information has included questionnaires, interviews and/or focus groups. Each method has its advantages and disadvantages and it is therefore good to use a mixture of approaches as they complement one another. In very large companies a questionnaire may be the only feasible method, but ideally it should be complemented with focus groups on a small but representative sample of the organization.

Creating the questionnaire

Once the desired components of the code of ethics have been established (through both a top-down and bottom-up approach) a set of required values and behaviours can be developed. These will then serve as the issues to be covered in the questionnaire. The easiest way to develop the questionnaire is to formulate statements illustrating behaviours that reflect the desired (and undesired) values and then ask the respondents if they agree or disagree with this statement (so called Lickert type scales). For example, taking a desired value from the example in Appendix A:

“We regard the health and safety of our employees, subcontractors, and the public, as well as protection of the environment to be a fundamental basis for our operations.”, This more general value regarding health and safety has been further elaborated into more specific values and behaviours, such as:

— Adopt a conservative, risk-based approach to our decision making
— Always place safety before commercial gain

The items that then should be included in the questionnaire are statements describing how these desired values could be described in your organization. For example, for the first bullet you can formulate a statement like:

— “I am encouraged and authorized to stop activities that present potential serious safety or health hazards”

O Strongly agree O Agree O Agree somewhat O Disagree somewhat O Disagree O Strongly disagree

And for the second bullet a statement such as:

— “Safety requirements may be temporarily lowered when threatened by financial loss”

O Strongly agree O Agree O Agree somewhat O Disagree somewhat O Disagree O Strongly disagree

In these examples, the first statement is formulated in a positive way (i.e. what is a desired behaviour) and the second statement in a negative way (i.e. an undesired behaviour). For the final questionnaire there should be a majority of positive statements mixed with some negative statements to avoid people just answering automatically in the same way.

In order to identify the extent of vertical agreement in the organization (i.e. between hierarchical levels) questions should be asked in the background information of the questionnaire about positions in the organization, for example: I have a supervisory function O yes O no and/or a more specified categorization like: O Senior manager O Manager O First-line supervisor O Employee.

And to identify the extent of horizontal agreement (i.e. between the different functions and groups of the organization) questions should be asked about professional category, such as: O operations O Maintenance O Technical Support O Human Resources etc

It is, however, VERY important not to break down the sample into such small units that anonymity is jeopardised. If you answer questions about age, sex, position, and department you shouldn’t end up with so few people that those who respond feel that they can be identified. The very strength of a questionnaire is that people feel they can express their views in an honest way.

In the end you will end up with a questionnaire covering the essential elements of your Code of ethics through about 70-80 statements. This questionnaire can then be administered again after about 2-3 years to see if the ethics program has had an effect on how people view the ethics values and behaviours in the organization.

Interviews and focus groups
After having developed the desired elements of a code of ethics you can also capture the present situation through interviews and focus groups. Interviews can be one-to-one or in a group setting (i.e. so called focus groups). Again taking the example from Appendix A the interviews can consist of a review of the present strengths and weaknesses in the organization with regard to the desired values and behaviours. The advantage with interviews and focus groups is that you can go more deeply into the issues. They also provide an opportunity to gather new information and identify areas that may have been overlooked in the development of the code of ethics.

Another way that focus groups can be used is to take results from the questionnaire and get more information on the background and deeper meaning of the findings.

Interviewing and leading focus groups requires special skills and therefore those performing these should be carefully selected and prepared for their assignments.

Follow-up assessments
The successful implementation of a code of ethics relies heavily on how this code is communicated and shown in the day-to-day business through the managerial leadership.

In order to follow-up on the success of the implementation a follow-up assessment should be made. It takes some time for changes to be apparent and thus, the follow-up should be done 2-3 years after initial implementation of the Code.

It is also important to recognize that the follow-up assessment will provide a comparison within the organization i.e. comparing any changes in results in relation to the baseline assessment. It can therefore not directly be used as a benchmark with other organizations since the assessment tools will be tailored to the specific organization and based on their own organizational culture.

Appendix E
EXAMPLES OF ETHICAL DILEMMAS IN THE NUCLEAR INDUSTRY

Experience has shown that, even in organizations that have clear codes of ethics, there are situations for which application of this Code is a challenge. Provided below are examples of ethical dilemmas that individuals in a nuclear industry organization might face.

(1) A nuclear engineer organization is responsible for technical evaluation regarding a contract for a 3-year fuel supply for an NPP. The sales representative for one of the bidders, who is a friend of this engineer, offers him €5,000 to put his firm at the top of the technical evaluation. The engineer decides that his values and ethics don't permit him to take this money. What else would you expect him to do?
   (1) go forward with his technical evaluation as if nothing had happened.
   (2) notify his supervisor about the bribe (knowing that your company's policies will result in his friends company being barred from bidding on future work).
   (3) contact your company's ethics ombudsman for advice.
   (4) none of the above (your suggestion).

(2) A reactor operator overhears three of his peers on another shift (one of whom, is his best friend) discussing how they have set up a method whereby each of them can get two hours sleep during each of their night shifts. The company has a policy that such behaviour is punishable by dismissal. What do you expect this operator to do?

   (1) forget he ever heard the conversation.
   (2) notify his supervisor about the conversation
   (3) contact your company's ethics ombudsman for advice.
   (4) none of the above (your suggestion)

(3) a procurement engineer for a nuclear power plant is responsible for preparing Requests for Quotations (RFQs) for contractor technical services. One day she sees a requirement for a contractor to provide scaffolding services for the upcoming plant outage. She knows that her neighbour and friend, Dave, has just obtained a franchise from an international firm to provide scaffolding services to local industries using state-of-the-art scaffold technology. Dave has explained to her how good his services are and she believes that it would be beneficial for her NPP for Dave to be the contractor of choice in this matter; however, plant procedures require that Dave submit a bid along with any other contractor that would like to be considered for the job. After some thought she realizes that she can look back through the history of this kind of service at her plant and be able to inform Dave of the lowest price that was acceptable in the past, she figures that having this knowledge of the lowest price and since his equipment is very good, he should obtain the contract. She doesn't expect any payment from Dave to do this and she genuinely believes that Dave's company is the best for her plant. Would it be unethical to provide Dave with this "inside" information?

(4) Roland is an executive on the board of a power generation company that includes nuclear assets. Roland invests in the stock market and has shares in a number of large companies. During high level discussions Roland learns that his company plans to refurbish two of its aging reactors and plans to build a third. He also learns that "Eastern NucTech" a huge construction company is likely to be awarded the lion's share of the work. Roland already has shares in Eastern NucTech but he was not part of

the decision making to award the contract. Should Roland sell the shares before the contract is awarded to Eastern NucTech or is this gain ethical?

(5) Roberto is a partner in a company that provides PSA studies and the supporting software to nuclear power plants. The company is doing well and recently Roberto has been invited to bid on a contract for the XYZ NPP. Roberto knows that the IAEA is planning a workshop in Vienna on "The Practical Uses of PSA Study Outputs" in the coming year. Roberto knows that PSA is new to the XYZ NPP and that their top people would benefit greatly from the workshop. Roberto has an upcoming meeting with the XYZ NPP's chief executive, the plant manager, and the nuclear safety manager to discuss the possibility of his company providing the services. He decides to inform them that, should his company get the PSA study contract, he will pay all the expenses for them and their wives to travel to Vienna so that they might attend the workshop and be better informed about the values of a PSA study. Is it ethical for Roberto to make this offer? Would it be ethical for the three company executives to accept his offer?

(6) A small country is just completing construction of its first nuclear power plant; the plant is a 1,000 MW unit of foreign design and it is considered that its operation will benefit the country greatly in terms of saving on the cost of importing foreign oil and gas. The nation's laws state that only its citizens can be licensed to operate the reactor. Despite the large investment in training in the country of origin of the NPP supplier there is a real problem in providing suitably qualified control room personnel. The plant has 5 licensed reactor operators but 5 more have twice failed their authorization/licensing examinations, without 10 licensed reactor operators, the plant cannot obtain its provisional operating license and start up. The next group of potential reactor operators must complete six more months of training before they are eligible to take the authorization/licensing examination. The minister of energy is aware of the problem and calls in the head of the regulatory agency. He impresses upon the regulator the importance of starting up the unit for the nation and makes a proposal: If the regulator can see its way clear to "lowering the bar" a little bit for these 5 individuals and passing them on the next exam, the minister promises to pay for 5 foreign experts to act as advisers in the control room. The minister argues that the 5 have had excellent training and are not far from being fully competent. Also, the design of the unit has proven to be trouble-free during normal operation and with the foreign advisers in the control room he has provided a safety back-up should anything go wrong. Is the minister being unethical in suggesting this solution?

(7) A reactor operator at the XYZ NPP is aware that some scheduled inspections of safety-related equipment have not been completed as required by the plant's operational safety requirements. He asks his shift manager about the inspections and is told that the inspections cannot be accomplished at present because plant conditions are such that if they were conducted there is at least a 25% chance that the plant would trip, and if the plant trips there would likely be rolling blackouts of power in the region served by the plant. Thus, the operations managers have decided to not perform the tests, but rather report them as successfully completed, and have the tests conducted during the next scheduled outage. The reactor operator has just received training on the new whistleblower policy set up in the company to protect individuals who report violations of the company's policies. However, as he has discussed his concerns about this cover-up with his supervisor and several colleagues, if he reports

this cover-up he expects that he will be ostracized by his fellow operators, even if his job is protected by the whistleblower policy. What should he do?

As these examples illustrate, ethical dilemmas for individuals in nuclear industry organizations are often the result of fear, greed, peer or political pressure, and/or financial pressures. They may also be the result of poorly thought out decisions or those made for the sake of expediency.

Ethical dilemmas such as the ones above could be of value to nuclear industry organizations to use for purposes such as for:

— practical training of new employees
— work group discussions
— refresher training
— facilitated training of managers and supervisors
— Board Room discussions

Appendix F
THE RELATIONSHIP BETWEEN AN CODE OF ETHICS AND OTHER PROGRAMMES/POLICIES OF A NUCLEAR INDUSTRY OPERATING ORGANIZATION — RELATED IAEA PUBLICATIONS

As was shown earlier in this report, the ethics and culture of an organization have an influence on all aspects of its activities. For a nuclear industry operating organization, the development and implementation of an ethics policy is particularly closely related to the following areas:

— Conduct of operations at nuclear facilities
— Management systems including quality management and safety culture
— Human resource management including human performance improvement
— Training and qualification of personnel
— Open and transparent decision making and communication methods
— Physical protection and control of nuclear materials
— Experience feedback and corrective action systems

The following are examples of IAEA publications in the above areas. A review of these publications indicated that none of them provide explicit guidance or lessons learned regarding the establishment or implementation of an ethics policy for nuclear industry operating organizations.

Conduct of operations at nuclear facilities

IAEA Safety Guide DS347 (Draft), *Conduct of Operations at Nuclear Power Plants*.

The objective of this publication is to provide Member States with recommendations to ensure that plant operations are conducted in a safe, effective, thorough and professional manner, in accordance with best international practices. It includes the following areas:

— Organization and administration of plant operations
— Shift complement and functions
— Shift routines and operating practices
— Control of equipment and plant status
— Operation facilities and operator aids
— Work control and authorization

Code of Conduct on the Safety of Research Reactors, IAEA, 2006.

The objective of this Code is to achieve and maintain a high level of safety in research reactors worldwide by proper operating conditions, the prevention of accidents and, should accidents occur, the mitigation of the radiological consequences, in order to protect workers, members of the public and the environment against radiation hazards.

Code of Conduct on the Safety and Security of Radioactive Sources, IAEA (2004).

Management Systems, including quality management and safety culture

The Management System for Facilities and Activities, Safety Requirements GS-R-3, (2006).

Application of the Management System for Facilities and Activities. Safety Guide GS-G-3.1 (2006).

Management of Continual Improvement for Facilities and Activities: A Structured Approach, IAEA-TECDOC-1491 (2006).

Self-Assessment of Safety Culture in Nuclear Installations Highlights and Good Practices, IAEA-TECDOC-1321 (2002).

Key Practical Issues in Strengthening Safety Culture, INSAG Series No. 15 (2002), Safety Reports Series No. 11 (1998).

Human resource management including human performance improvement

Risk Management of Knowledge Loss in Nuclear Industry Organizations, IAEA, STI/PUB/1248 (2006).

Knowledge Management for Nuclear Industry Operating Organizations, IAEA-TECDOC-1510 (2006).

Basic infrastructure for a nuclear power project, IAEA-TECDOC-1513, (2006)

Human Resource Issues Related to Expanding a Nuclear Power Programme, IAEA-TECDOC-1501 (2006).

Human performance improvement in organizations: Potential application for the nuclear industry, IAEA-TECDOC-1479 (2005).

Managing human resources in the nuclear power industry: Lessons learned, IAEA-TECDOC-1364, (2003).

The Nuclear Power Industry's Ageing Workforce and Transfer of Knowledge to the Next Generation, IAEA-TECDOC-1399 (2004).

A systematic approach to human performance improvement in NPPs: Training Solutions, IAEA-TECDOC-1204 (2001).

Selection, Competency Development and Assessment of Nuclear Power Plant Managers, IAEA-TECDOC-1024 (1998).

Nuclear power plant organization and staffing for improved performance: Lessons learned, IAEA-TECDOC-1052 (1998).

Training and qualification of personnel

Authorization of nuclear power plant control room personnel: methods and practices with emphases on the use of simulators, IAEA-TECDOC-1502, (2006)

Competency assessments for nuclear industry personnel, STI/PUB/1236 (2006).

Development of instructors for NPP personnel training, IAEA-TECDOC-1392 (2004).

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