ETHICS IN THE NUCLEAR SECTOR
Ethical issues in practice

Radiation protection ethics at EDF

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Second European Workshop on the Ethical Dimensions of the RP System
Madrid, 4-6 February 2015

In all circumstances, corporate responsibility involves the sharing of ethical values and commitments inspiring and guiding the actions of every member of EDF Group personnel.

THE EDF GROUP COMMITMENT IS TO:

- GUARANTEE HEALTH AND SAFETY
  Guarantee health and safety of the persons concerned by its activity and plant and structure safety

- PROTECT THE ENVIRONMENT
  Protect the environment by managing the risks and reducing the impacts of the activity on Man and nature

- PREVENT DISCRIMINATION AND HARASSMENT
  Prevent and handle any unfair or discriminatory conditions and any situation of constraint, violence and harassment arising in working life

- ACT IN AN ETHICAL MANNER
  Do not impose on personnel an objective that goes against the grain of the Group ethical values and commitments

- BE RECEPTIVE TO OTHERS
  Be receptive to its stakeholders: personnel, customers; shareholders, associations and public authorities and provide them with the information that is their due

- GUARANTEE THE RIGHT TO ALERT
  Guarantee to every employee faced with a situation going against the grain of Group ethical values and commitments their right to alert their management or the dedicated point of contact in the company in complete confidentiality without fear of reprisal, or if need be, as a last resort, the Group professional conduct and ethics committee

Fostering performance in keeping with the requirement of integrity, the EDF Group is built on three values:

- Respect
- Solidarity
- Responsibility
EVERY GROUP EMPLOYEE IS COMMITTED TO:

**RESPECTING OTHERS**
- Respect the persons and their rights, and thereby lend support to tolerance, discrimination or physical or moral violence.
- Establish professional relationships with tolerance, respect and a spirit of teamwork.
- Conform to the rules of security and protection of the health.
- Respect your colleagues, your clients or any other parties and keep all documents and personal information confidentially.
- User your freedom of expression in the company without any discrimination.

**RESPECTING GROUP STAKEHOLDERS**
- Respect the clients, suppliers or colleagues by informing them of the quality and security of the products you are dealing with.
- Respect all the suppliers and service providers, by informing them of the quality and importance of the services you offer.
- Respect all the authorities or public parties, by avoiding bribery or influence (lobbying).

**CONTRIBUTING TO GROUP ETHICS**
Contribute to Group ethics by playing your role in the scope of your activity and your professional relations.

Ethics issues are not only a responsibility of the company, each employee has a role to play in this ethical behavior.

EDF has been a member of the United Nations Global Compact since 2001.

**Human Rights**
- Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights, and
- Principle 2: make sure that they are not complicit in human rights abuses.

**Labour**
- Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.
- Principle 4: the elimination of all forms of forced and compulsory labor;
- Principle 5: the effective abolition of child labour, and
- Principle 6: the elimination of discrimination in respect of employment and occupation.

**Environment**
- Principle 7: Businesses should support a precautionary approach to environmental challenges;
- Principle 8: undertake initiatives to promote greater environmental responsibility; and
- Principle 9: encourage the development and diffusion of environmentally friendly technologies.

**Anti-Corruption**
- Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

What is the UN Global Compact?
"The Global Compact asks companies to embrace universal principles and to partner with the United Nations. It has grown to become a critical platform for the UN to engage effectively with enlightened global business."

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**The Ten Principles**
The UN Global Compact’s ten principles in the areas of human rights, labor, environment and anti-corruption enjoy universal consensus and are derived from:
- The Universal Declaration of Human Rights
- The International Labour Organization’s Declaration on Fundamental Principles and Rights at Work
- The Rio Declaration on Environment and Development
- The United Nations Convention Against Corruption
Focus on radiation protection

Company values far exceeding the regulatory requirements

- Adaptation of the workstation for pregnant members of EDF personnel as soon as their pregnancy is declared and their authorisations are suspended (classified radworker) (Dignity and respect for persons, more related to our culture than to the real risk for the foetus)
- Value of transparency and reporting of events
- operations carried out on a voluntary basis, such as entry in the reactor building with the unit in operation (Autonomy capacity to choose freely, self determination)
- setting up of dose recording, right from the start, for cases of internal contamination lower than the recommendations laid down by the ICRP (0.5 mSv instead of 1 mSv) (risk of gamma exposure from activation and fission products easily measurable)

A practical example of an ethical process for contractors from 1997 to 2015: From a charter to contractor specifications

- In order to achieve the safety and competitiveness aims for its fleet of nuclear power plants, EDF has been totally committed since 1991 to a policy of partnership with the contractor companies based on ethical resolve (solidarity and dignity).

- 1997: A first charter was signed to formalise reciprocal commitments in the following fields:
  - transparency of deployment of contractors,
  - development of worker professionalism and long-term workload forecasts,
  - improvement of radiation protection, industrial safety and work conditions (notion of equity: same condition of works)
Successive developments

- **2004**: EDF and the professional organisations representing nuclear contractors signed a new charter of progress.
  - It confirmed the guiding principles of the initial charter of 1997,
  - It strengthened EDF commitments to contractor companies to further improve industrial safety and quality of work practices. It also covers environmental aspects.
  - With 2 commitments:
    - **A place of consultation with trade unions**: inter-company workplace safety committee meetings (CIEST) or equivalent (social acceptance and dialogue so respect and dignity values)
    - **Facilitated transmission of dose records**: (Transparency and EDF accountability)

- **2011**: An amendment specified new reciprocal commitments in the following fields:
  - **Competence and development of worker professionalism**.
    The contractor company ensures that only employees covered by a specific medical certificate and having passed the risk prevention training stipulated in the EDF baseline, and refresher training where appropriate, can work in the RCA apart from exceptional duly justified situations. (equity: same training courses)
  - **Radiation Protection**:
    The amendment reconfirmed joint commitments in this field by strengthening them: the role of Radiation Protection Officers, radiation protection certification of the contractor companies (for example, CEFRI certification) depending on the activities carried out and analysis of deviations.

Ethical approach concerning the contractors: best bid culture

- The events occurring at Fukushima Daiichi nuclear power plant in Japan in March 2011 resulted in strengthening this attention.

- **2012**: It is no longer a charter but a contractual document, stipulating:
  - Commitments from both parties (nuclear operator and contractor company), the honouring of which shall be tracked and checked on the same footing as technical and commercial commitments,
  - It contains transparent rules common to all the participants in the nuclear power sector
  - **Radiation protection innovation**: Formalised arrangements in the event of the pre-alert threshold (dose constraint for the most exposed workers) of 14 mSv being reached
  - (Justice and equity)
Common radiation protection practices
EDF workers on an equal footing with contractor workers

Non-discrimination / justice
- Deliberate intent to decrease individual doses (doses halved in 10 years both for EDF and contractor personnel)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of workers &gt;14mSv/year</th>
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<tbody>
<tr>
<td>2009</td>
<td>70</td>
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<tr>
<td>2010</td>
<td>46</td>
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<tr>
<td>2011</td>
<td>24</td>
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<td>2012</td>
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<td>2013</td>
<td>8</td>
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<td>2014</td>
<td>5</td>
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- Dose requirements for the most exposed specialisations: decrease over the past 6 years in the maximum number of workers with monthly dose breaching 14 mSv per year (max of 5 workers in a month > 14 mSv)

RP training: EDF workers on an equal footing with contractor workers

- Non-discriminatory training: for everybody and of equal quality
  - Identical documents that are accessible and free of charge: the radiation protection handbook for everybody
  - A common ALARA computer application (PREVAIR) for dose assessments (equity: to use the same tools)

- Setting up of the radiation protection club: an annual meeting attended by more than 350 RP professionals, with testimonials of good practices, round tables and joint EDF-contractor work sessions
  - (dialogue at the same level, cross cultural considerations)
RP instruments and access to dose records
EDF workers on an equal footing with contractor workers

• principles of the right to know and access to information
  – Operational gamma and neutron dosimeters with free access to operational dosimetry (EDF and contractor personnel) in real time
  – Shared EDF and contractor computer application for worksite ALARA planning

• Effective RP equipment fulfilling the needs (fostering the advent of new products: large article monitors developed by EDF at the request of the contractors workers)

Conclusion

• In addition to the 3 principles of caution, non-discrimination and dignity, application of radiation protection ethics within a major company is based on receptiveness and anticipation of social demand so as to be able to take informed decisions not related to regulatory changes (deontology),

• Lastly, shared values foster the feeling of belonging to a group and adhesion to a contractor company and reinforce the notion of “living together”, well being and the trust (demonstrated by an annual survey performed among EDF and contractors workers).