FANC

federal agency for nuclear control


# TOGETHER
# WE PROTECT

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### WHAT IS "IONISING RADIATION"?

Ionising radiation comes from the nuclei of atoms, which are the building blocks of all matter: nature, the human body, everything around us. Most atoms are stable, but certain atoms change or disintegrate into totally new atoms. During this process of transformation, which is known as "radioactivity", the nucleus emits ionising radiation. It is a phenomenon that you cannot see, feel, smell or taste. Radioactive materials can be found absolutely anywhere.

#### A DISTINCTION IS MADE BETWEEN NATURAL RADIOACTIVITY...

Radioactive elements are found naturally in air, water and soil. One example is radon, a radioactive gas that exhausts naturally from the ground and is indeed the main source of our exposure to natural radioactivity. Another source of natural radioactivity is cosmic radiation. Some radioactive elements even occur naturally in the human body.

#### ...AND ARTIFICIAL RADIOACTIVITY

Artificial ionising radiation is caused by man-made processes in the medical field (radiology, radiotherapy, nuclear medicine, etc.) and in the industry (electricity generation, manufacturing of radioisotopes, sterilisation of foodstuffs, etc.). Medical applications make up approximately 50% of our average annual exposure to ionising radiation.


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# OUR MISSION

**Frank Hardeman**
General manager

**Jihane Annane**
Chair of the Board of Directors

"The Federal Agency for Nuclear Control promotes **the effective protection** of the general public, workers and the environment **against the hazards of ionizing radiation.**


Dosimeter: instrument for measuring exposure to ionising radiation

# OUR VALUES

## COMPETENCE

- We work **proactively.**
- We strive for **continuous improvement.**

## INDEPENDENCE

- We aim to provide an **independent, exact** and **multidisciplinary** expertise.
- We wish to be an **ethical, impartial** and **trustworthy** organisation.

## TRANSPARENCY

- We communicate **transparently, neutrally** and **objectively.**
- We have an open, **honest** and **constructive relationship** with our stakeholders.
- We encourage **dialogue** based on **mutual respect** and **active listening.**
- To strengthen our **credibility,** we make sure that our actions are transparent and universally understandable.

# OUR TOP PRIORITIES

## ENSURING A HIGH LEVEL OF SAFETY

Certain installations (nuclear power plants, medical facilities, etc.) and activities (transport of nuclear material, storage of radioactive waste ...) involve the use of ionising radiation. Hence they are subject to specific rules and regulations. We make sure that the licensees observe all applicable regulations so as to ensure the **optimal management** of these installations and activities.

We constantly check whether all possible **precautionary measures** have been taken to protect the general public, the workers and the environment against the hazards of ionising radiation.

## TAKING CARE OF NUCLEAR SECURITY

Sources of ionising radiation can be abused for malicious purposes. A strict monitoring of the licensees' compliance with security provisions enables us to prevent, detect or contain any **malicious acts** (e.g. attack, theft, sabotage, unauthorised access, etc.) and to protect the general public from radiological hazards.

We contribute actively to defining the positions held by the Belgian government with regard to nuclear **non-proliferation**. Furthermore we also accompany **international inspection teams** during their inspections and audits, as defined by the safeguard agreement and its additional protocol.

## ENHANCING RADIATION PROTECTION

Ionising radiation can be used for medical treatment or diagnosis, but it is not without risks. When administered at high doses, radiation may have severe health effects. That is why the FANC supervises the strict observance of the fundamental principles of radiation protection.

Any unnecessary **exposure** to ionising radiation must be avoided. In cases where the use of ionising radiation is justified, the administered dose must be kept as low as possible.

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**2** nuclear power plants
**7** nuclear reactors

**THOUSANDS**
of medical, industrial and scientific installations and activities

**40,000**
transports of nuclear or radioactive materials per annum

# THE ESSENCE OF OUR WORK

## 1 ANTICIPATING, INFORMING AND REGULATING

Ensuring the efficient protection of the general public, the workers and the environment against the hazards of ionising radiation starts with **anticipating** potential risks.

To that end, we **provide information** to our stakeholders: the general public, professionals, politicians, and the media. We run **campaigns** to raise awareness and to promote prevention. We make our scientific, legal and educational documentation available to everyone on our website. We communicate proactively and reactively with the media.

We also **work continuously to improve regulations** so that they reflect reality. We draw up guidelines and launch regulatory initiatives with the help of national and international expert groups.

**> 500** inspections carried out each year

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## LICENSING AND MONITORING

Licensing is the first stage of our monitoring process. Anyone who wishes to start an activity or installation that involves ionising radiation must apply for a **licence** from the FANC.

We carry out regular **inspections** to check if the licensee observes the applicable regulations and imposed licensing conditions, and we supervise the inspections carried out by certified inspection agencies. In case of non-compliance, we have the authority to draw up a *procès-verbal* and to impose disciplinary or sanctionary measures.

Furthermore, we also operate a **radiological surveillance** system covering the whole Belgian territory. Our TELERAD system constantly measures the level of radioactivity in the air and water. Next to that, we also take samples from the main components of the environment and the food chain: soil, airborne particles, milk, drinking water, meat, vegetables, etc.

TELERAD measuring stations every

**20 KM**

**29,500 RADIOACTIVITY ANALYSES**

per annum

▾ Tihange Nuclear Power Plant

▲ TELERAD measuring station on the roof of the FANC building in Brussels

## 3 MANAGING THE UNEXPECTED

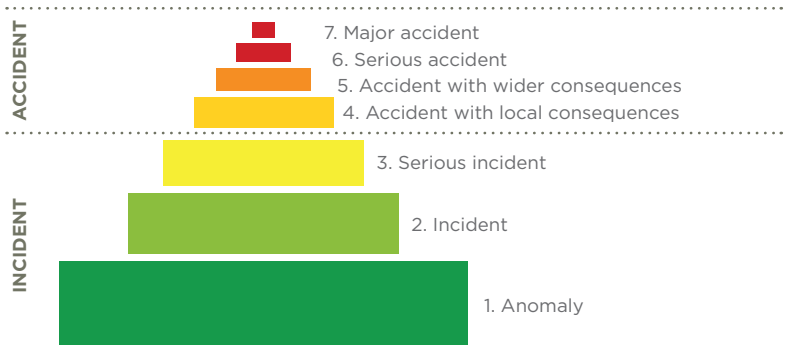
Despite our prevention efforts and inspection activities, abnormal situations constituting a real or potential threat may still arise. Therefore we develop adequate procedures, in conjunction with our stakeholders, in order to ensure that all parties concerned are notified rapidly and can respond efficiently in the event of an incident or accident involving ionising radiation.

By imposing all necessary emergency measures we prevent incidents or accidents from happening again. We also take into account national and international feedback to improve prevention of potentially hazardous situations both in Belgium and abroad.

In situations which require launching the nuclear and radiological emergency plan, we provide scientific and technical assistance to the Crisis Centre operated by the Federal Administration of Home Affairs. Outside emergency situations, we take part in exercises to test the nuclear and radiological emergency plan.

### INES, FOR A BETTER UNDERSTANDING OF UNFORESEEN EVENTS

The INES scale *(International Nuclear Event Scale)* is a **communication tool** intended to provide a simple way of describing the safety significance of an event involving sources of ionising radiation. All events (deviations, incidents or accidents) which involve ionising radiation and which have a real or potential impact upon the general public, workers, installations or the environment can be classified using the scale's seven levels of severity.



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## LOOKING TO THE FUTURE

We have to put our **knowledge** of radiation protection up for constant review to make sure that our information is always up-to-date. Therefore we maintain **good relationships** with both national and international actors in the nuclear field.

We also submit our activities for international **peer review.**

We **collaborate** closely with the safety authorities of our neighbouring countries, and **harmonise** our regulations and practices.

In order to maintain a high level of radiation protection, nuclear safety and nuclear security, we are in a **constant dialogue** with our stakeholders, we encourage and monitor **scientific research,** and we provide in training and development for those employed in the nuclear sector.


### ACTIVE ON AN INTERNATIONAL LEVEL

**These days, nuclear safety authorities are supported by a wide international exchange network. We are an active member of the following organisations:**

**IAEA**
International Atomic Energy Agency
www.iaea.org

**NEA**
Nuclear Energy Agency
www.oecd-nea.org

**UNSCEAR**
United Nations Scientific Committee on the Effects of Atomic Radiation
www.unscear.org

**ENSRA**
European Nuclear Security Regulators Association
www.ensra.org

**ENSREG**
European Nuclear Safety Regulators Group
www.ensreg.eu

**WENRA**
Western European Nuclear Regulators Association
www.wenra.org

**HERCA**
Heads of the European Radiological protection Competent Authorities
www.herca.org

**EURACA**
European Association of Competent Authorities
www.euraca.eu

# OUR ORGANISATIONAL STRUCTURE

## A STRONG LEGAL BASIS

The Law of 15 April 1994 describes the FANC's **legal duties** in the field of radiation protection, nuclear safety and radiological surveillance. On 2 April 2003 and 30 March 2011, this law was amended to include nuclear security.

Decrees were issued in pursuance of this law which outline the FANC's tasks and the rules and conditions governing their execution. One of the essential basic texts relating to radiation protection and nuclear safety is the Royal Decree of 20 July 2001.

All ionising radiation regulations can be found in FANC's legal database JURION: www.jurion.afcn.be

## A STATUTE GUARANTEEING INDEPENDENCE AND IMPARTIALITY

Our activities fall under the control of the **Minister of Home Affairs.** Our status as a semi-governmental institution gives us a large degree of independence and enables us to fulfil our responsibilities to society in an impartial fashion.

As a federal organisation we are active in the whole of Belgium, wherever the circumstances require it.

## TECHNICAL SUPPORT: OUR BEL V SUBSIDIARY

In order to ensure optimum nuclear control, we rely on the **technical expertise** of our subsidiary Bel V. In addition to our own inspections program Bel V carries out regular inspections in all of Belgium's nuclear installations. www.belv.be

## SCIENTIFIC SUPPORT

For our decisions we seek the advice and follow the recommendations of the **Scientific Council** for Ionising Radiation and the **Medical Jury.**

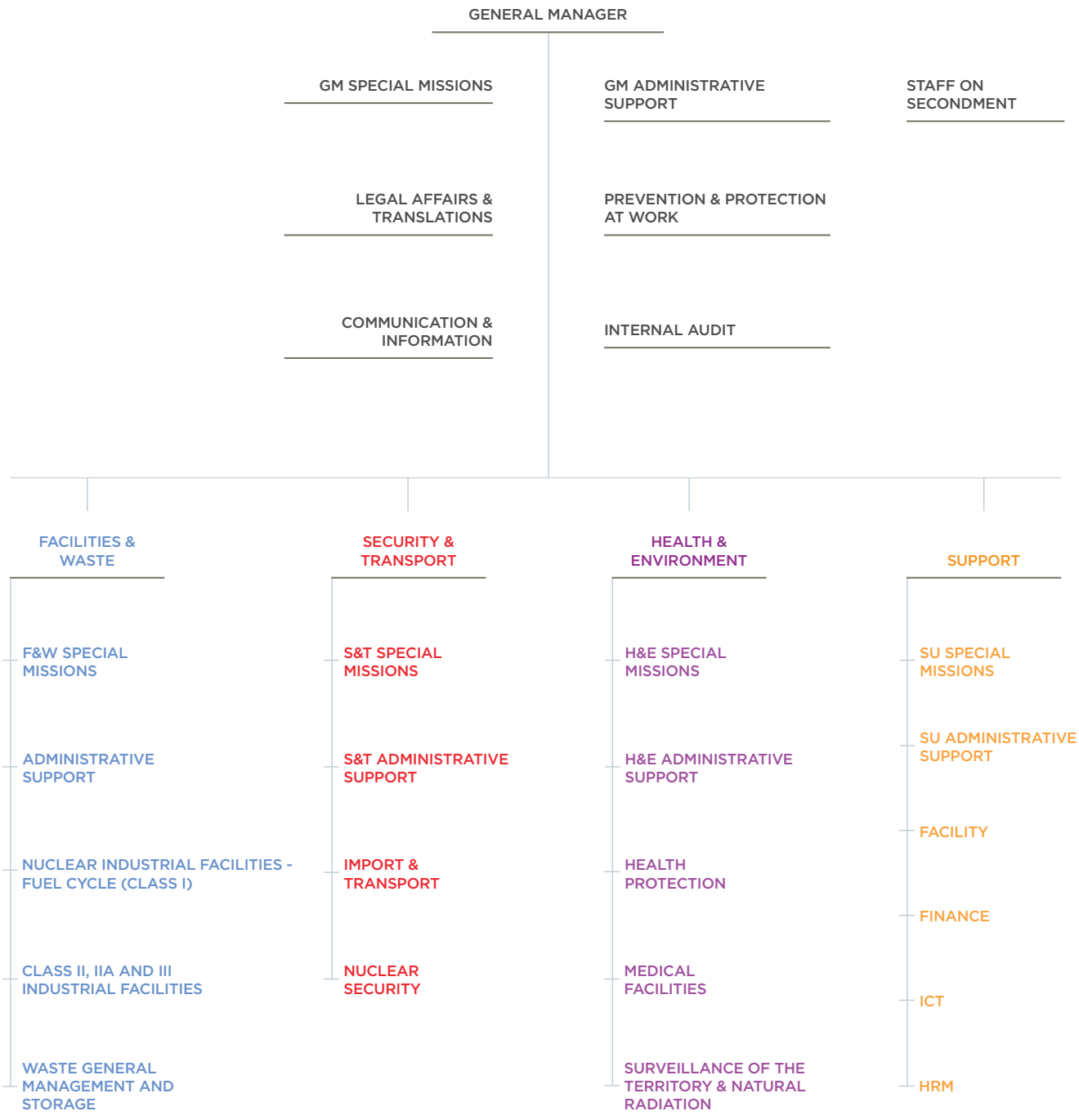
**162**

employees

## A MULTIDISCIPLINARY TEAM:

civil and industrial engineers, doctors, physicists, lawyers, administrative assistants etc.

## ORGANISATION CHART





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