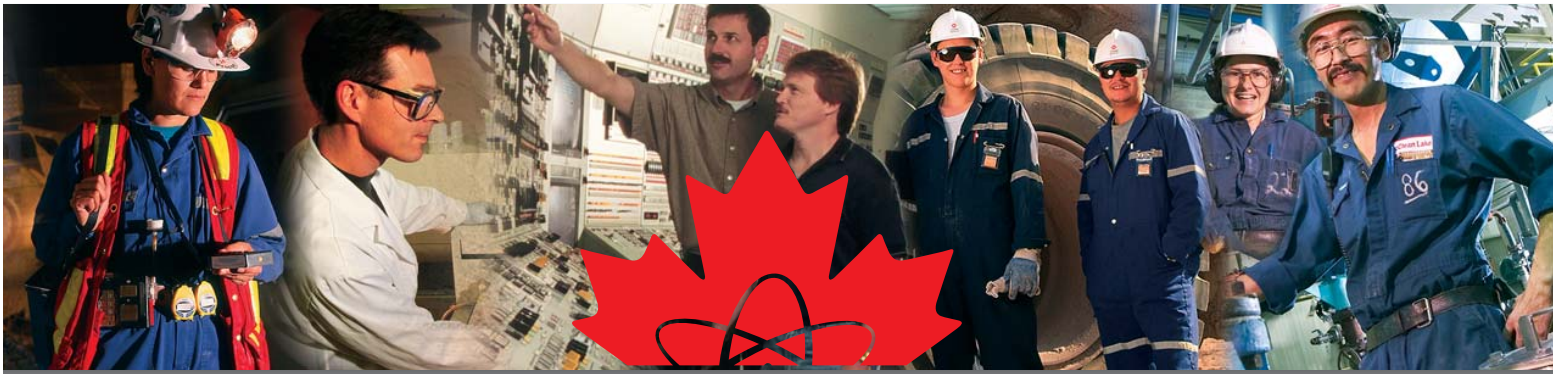

CANADIAN
NUCLEAR
WORKERS' COUNCIL

CANDU Technology – Safety In Depth

No Canadian nuclear worker or member of the public has been harmed by radiation from a nuclear power plant -- ever. This impressive track record is because Canada's nuclear industry is among the most highly regulated and safety-conscious in the world.

A "safety in depth" philosophy applies to all aspects of the nuclear industry from uranium mining, to fuel processing and fabrication to the design, construction and operation of nuclear power plants.

Regulatory Oversight

The Canadian Nuclear Safety Commission, an independent agency protects the environment and health and safety of workers and the public in accordance with the regulatory framework set out in the *Nuclear Safety and Control Act* (NSCA). Maximum radiation doses are based on recommended standards for radiation protection of workers and the public from the International Commission on Radiological Protection (ICRP is an international organization of independent scientists).

The NSCA regulations require licenses for almost all activities. Persons or organizations preparing a site, constructing, operating, decommissioning or abandoning a nuclear facility must first obtain a license from the CNSC. Regulations stipulate the prerequisites for the license as well as the obligations of the licensees.

Designed for Safety

CANDU nuclear reactor designs are among the safest in the world having multiple safety barriers to protect workers and the public in the event of an accident. CANDU's many safety systems take into account human error, equipment failure and external risks such as earthquakes.

The CANDU design includes two totally independent and redundant safety systems that automatically shut down the reactor in the event of any major equipment malfunction. They also include a unique feature that maintains the cooling of the fuel in the event of a failure in the reactor cooling system.

An airtight containment building with walls of reinforced concrete up to 1.8 metres thick surrounds each reactor. This barrier is designed to prevent the release of any radioactive material to the environment in the event of an accident.

At nuclear power plants with multiple reactors like those in Ontario, each reactor building is connected to a common vacuum building.

Plant operations are continuously monitored. CNSC inspectors are located on-site at these stations. All components and safety systems are subject to special testing and inspection to ensure compliance with CNSC requirements and those set out in the Operating License. Failure to comply can lead to the withdrawal of an operating licence.

Continued...

A Strong Safety Culture Underpins Operations

The Canadian nuclear industry's record for both radiation and conventional safety is exceptional. Concern for safety is every nuclear industry worker's responsibility—that of their co-workers and of the nearby communities in which they live.

Workers at Canada's nuclear plants include a wide range of skilled trades-people and specialists. Up to five percent of the personnel working in nuclear power plant are devoted entirely to safety training and monitoring e.g. radiation safety technicians as well as conventional safety specialists and security personnel.

Nuclear operators—the people who work in the power station's control room are carefully selected and spend several years being trained. The CNSC sets the examinations and reviews the qualifications of applicants for this role. Training takes place in the class-room, on simulators that replicate the control room and on-the-job.

Darlington Nuclear Generating Station,
Courtesy of Ontario Power Generation