



# SOCODEI, SOLUTIONS FOR RADIOACTIVE WASTE

Initiated by the legislature and today a key challenge for stakeholders, the management of waste from nuclear activities is intended to limit environmental impact. The objective is to only store so-called "final" waste. Waste that has been optimized and can no longer be used is considered final.



In the French nuclear industry, the main producers of waste, which are EDF, AREVA and CEA, have largely taken this concern into account. And it is in this respect that SOCODEI, a wholly-owned subsidiary of the EDF Group, has been entrusted with the mission to design, finance, build and operate treatment and recovery facilities that contribute to a better protection of the environment.

SOCODEI thus offers treatment services for a wide variety of radioactive materials and wastes; these processes are environmentally-friendly and appropriate to today's requirements. From collection on the production sites up to the delivery of the final waste to the storage sites,

SOCODEI offers a comprehensive service to its customers with the objective of:

- significantly reduce the volume of waste,
- valorizing of the radioactive materials in accordance with regulations,
- characterizing and securely conditioning the final residues intended for the ANDRA repositories: solids that are non-dispersible and chemically stable.

In addition, SOCODEI is responding to issues in the processing of new types of materials and waste by developing innovative technical and industrial solutions.



# SOCODEI IN ITS ENVIRONMENT

By reducing, recycling and conditioning radioactive materials and wastes, SOCODEI contributes to respect the environment.

As a responsible company, SOCODEI has committed itself to environmental management since 2003 and put this into practice by obtaining ISO 14001 certification, a recognition of its ongoing progress in favor of the environment. This certification reflects the EDF Group's desire to take a sustainable development approach.

Additionally, in 2005, SOCODEI obtained ISO 9001 certification, thereby affirming its willingness to put ongoing improvement of its performance at the core of its management, and OHSAS 18001 certification in 2006, which characterizes its involvement in the field of health and safety. This triple certification has been regularly renewed ever since.



## On Site Waste Conditioning Services

SOCODEI has developed an offering that directly treats waste at the sites of production, nuclear power stations, laboratories and factories.

Some types of waste cannot be transported owing to their radiological or physical-chemical characteristics.

In those cases it is preferable to move the processing machine rather than the waste.

Mobile machines designed by SOCODEI condition it in compliance with stringent specifications before shipment to ANDRA.

Each mobile machine conditions different kinds of waste on the sites. The Mercure mobile machines treat the spent exchange resins used to purify the waters from the circuits.

SOCODEI also operates a mobile encapsulation unit for radioactive concentrates resulting from the evaporation processing of the effluents produced by nuclear power plants.



### SOCODEI

- Operates nuclear materials and nuclear waste treatment facilities
- Designs and creates new treatment solutions for nuclear materials and wastes

### CENTRACO

- Reduces the volume conditioned and precisely characterizes the waste
- Valorizes the radioactive material

## Radioactive Waste

SOCODEI mainly treats "VLL and LL type" radioactive wastes, i.e. with very low or low level radioactivity and short half life (their radioactivity decreases by half after 30 years). These wastes only account for 0.1% of the radioactivity but represent 90% of the volume of all radioactive waste. Other wastes (ML or HL type) represent 99.9% of the radioactivity and 10% of the volume of all the radioactive waste produced in France. SOCODEI is even able to process some ML waste.

## Europe-Wide Solutions

At the CENTRACO plant, SOCODEI is authorized to treat low-level radioactive waste from foreign producers, under safety conditions identical to those applied in the treatment of French waste. The treatment of such waste guarantees their traceability, and they are returned to the producing country after treatment. With its mobile machines, SOCODEI has conditioned mid-level radioactive process waste in Belgium. This waste is managed in Belgium by ONDRAF (National Agency for Radioactive Waste and Enriched Fissile Materials).





## A Radioactive Waste Processing and Conditioning Center

Located in the city of Codolet in the Gard region of France, near the Marcoule industrial platform, the Center for Processing and Conditioning (CENTRACO) has been operated by SOCODEI since 1999.

CENTRACO has a Basic Nuclear Facility (INB) status, which allows it to offer its customers processing and conditioning solutions for materials and waste resulting from civilian and military nuclear activities (industrial, medical, and research).

It deals with low-level and very low-level radioactive materials and wastes with the goal of reducing their volume, valorizing them when possible and characterizing and conditioning the residues in the form of final packages entrusted to ANDRA for storage.

CENTRACO operates two industrial processes, an incineration process and a melting process.



## CDB, A SOCODEI SUBSIDIARY, SPECIALIZING IN THE MANUFACTURE OF CONCRETE CONTAINERS

CDB is a prefabrication company, subsidiary of SOCODEI (51%) and of Vinci Construction France (49%).

Its production is mainly oriented towards products used for the packaging of radioactive waste:

- reinforced concrete containers,
- dry fillers.

Dry fillers consist of dry aggregates and of pre-measured cement and additives packaged in flexible containers.

These are used to make the concrete for the containers as well as the concrete and mortar for the encapsulating, immobilizing and capping of radioactive waste on nuclear sites. It is these containers that are used by the SOCODEI Mercure units.

CDB also manufactures reinforced concrete poles that support overhead power lines and operates an alluvial quarry, approved by ANDRA.





## Closely Monitored Low-Level Radioactive Waste

The waste treated by SOCODEI, from collection to storage at ANDRA, is constantly monitored. Specific criteria for radioactivity, physical and chemical composition as well as the conditioning method are prerequisites for the acceptance of the waste.

## Logistics and Maintenance Services

SOCODEI is in a position to fulfill many of its clients' requests for specific issues of handling and treatment of radioactive waste in situ.

The EDF Group has decided to establish a maintenance center for its nuclear facilities. This center is being built in Saint Dizier. SOCODEI, the future operator of the center (scheduled to open in 2017), is collaborating on its design and construction.

## Engineering at the service of Development

SOCODEI, through its skills and its engineering capability, provides an operational response to waste treatment and operating logistics issues to serve nuclear operators.

SOCODEI, alone or in partnership, is able to reply to national and international tenders.

