

Welcome to Orano Projects and the Technical Center



HRB

Orano Projects & The Technical Center (HRB)

General presentation 2023

Servane Dubois, Site Manager



Who are we ?



Attached to the Orano Projects organization and located close to the Orano La Hague plant, this technical center (HRB) is a **unique place for Development and Qualification (D&Q)**.



Established in 1991, at the time of the construction of the UP2-800 and UP3 La Hague plants, specifically to carry out D&Q tests necessary for the implementation and startup of these plants.

Today, the HRB provides support for the operation of the plants and also for the development of new processes and technologies.

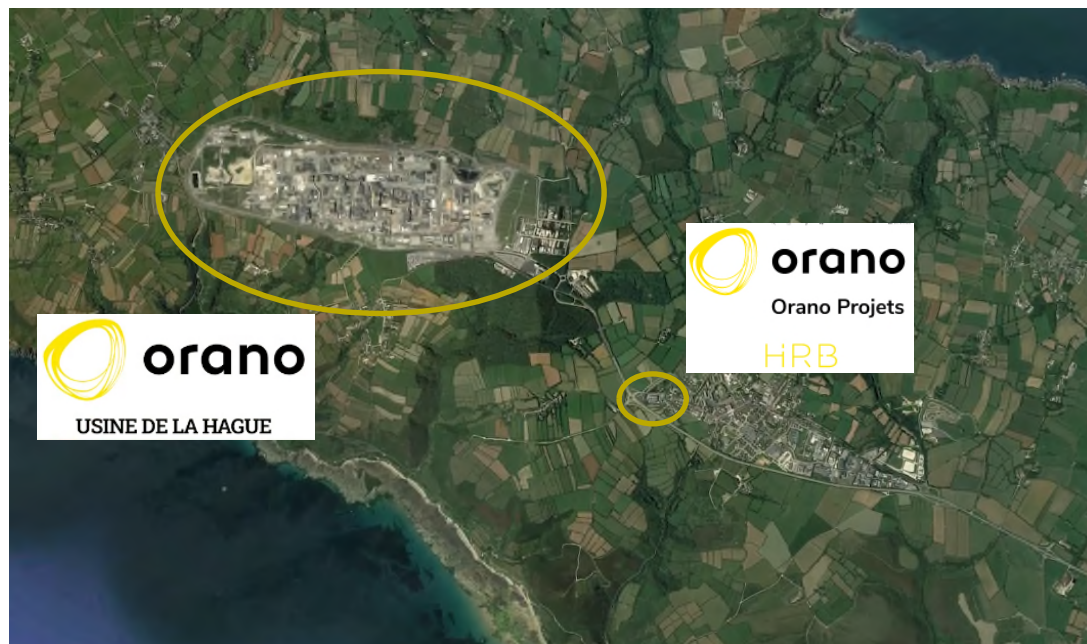


The HRB develops and qualifies equipment and processes in the fields of chemistry, chemical engineering, science of materials, mechatronics, and instrumentation to **maintain, improve, or create** new features on production units.

Where are we ?



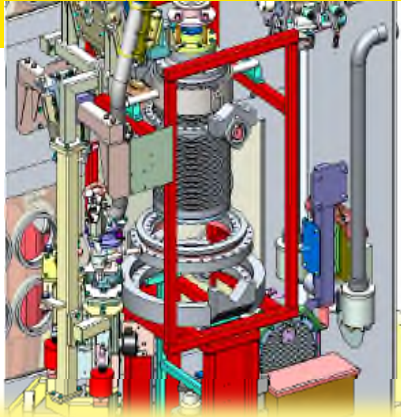
Focus on La Hague



HRB



What is our job ?



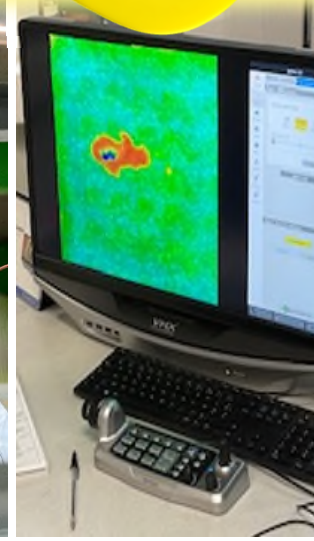
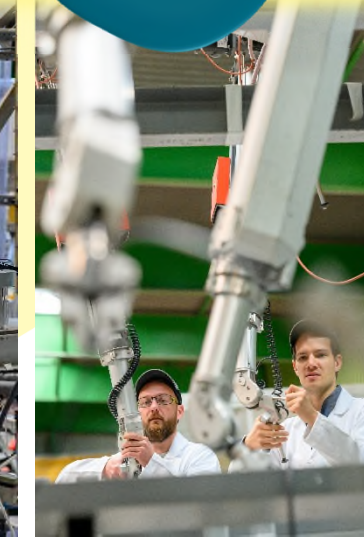
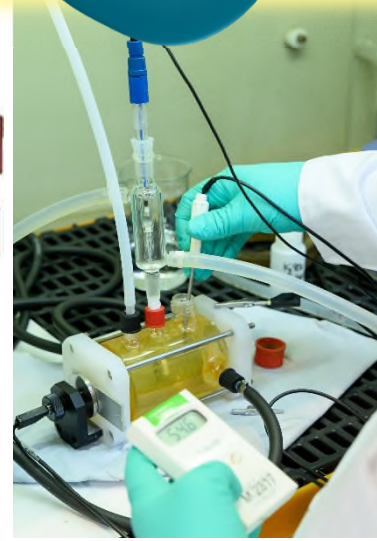
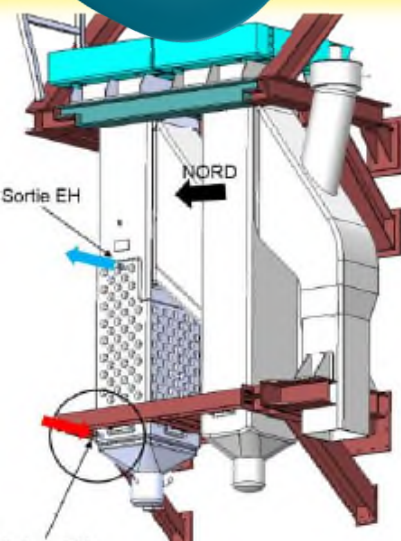
Conceptual studies

Small-scale testing

Pilot and industrial scale testing

Training for operators and technical assistance on site

Logistical facility and analytical equipment



Our strengths

Our ability to carry out D&Q projects according to the needs of our clients :

- on models ranging from laboratory to industrial scale,
- on models representing a design or a functionality,
- by representing intervention conditions (contact or remote),
- and using simulation products for radioactive materials.

With a multidisciplinary team attentive to the client

- Including experts, engineers and technicians,
- Covering a wide range of technical areas.

Our activities

Support for the
operation of the
plants.

Innovations and
partnerships with start-
ups

**The activities
of the HRB**

Projects for the
Recovery and
Conditioning of Waste

R&D Projects: metal
valorization, nitrate
destruction, molten salt
reactors, and more.

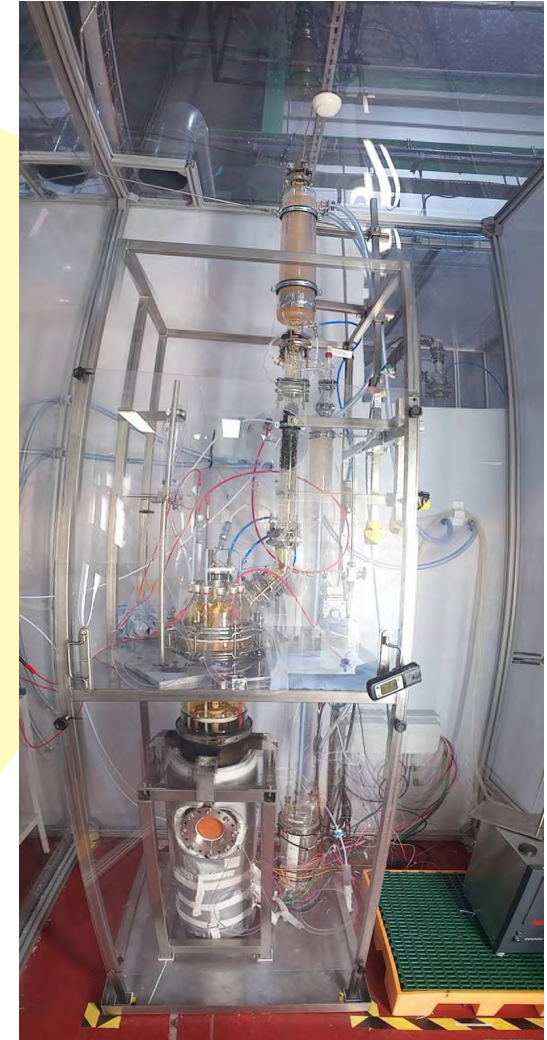
Our activities

Chemistry and Chemical Engineering

Laboratory-scale testing for studying corrosion, physico-chemical behavior of solutions and toxic gases, and the development of cement formulations.

Pilot-scale and industrial-scale process testing for fluid transfer, mass and heat transfer, cementing, etc.

Vitrification pilot plant.

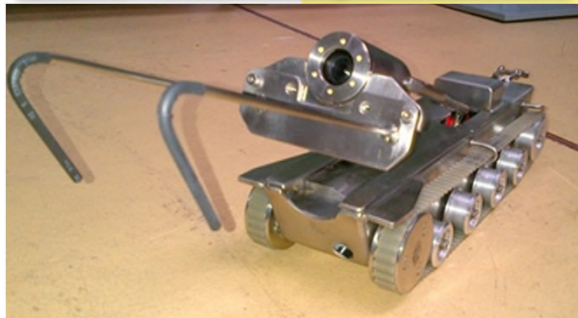


Our activities

Mechatronics and Robotics

Non-destructive testing of equipment
(video inspection, thickness measurement, etc.)

Maintenance or repair operations in high-activity cells.



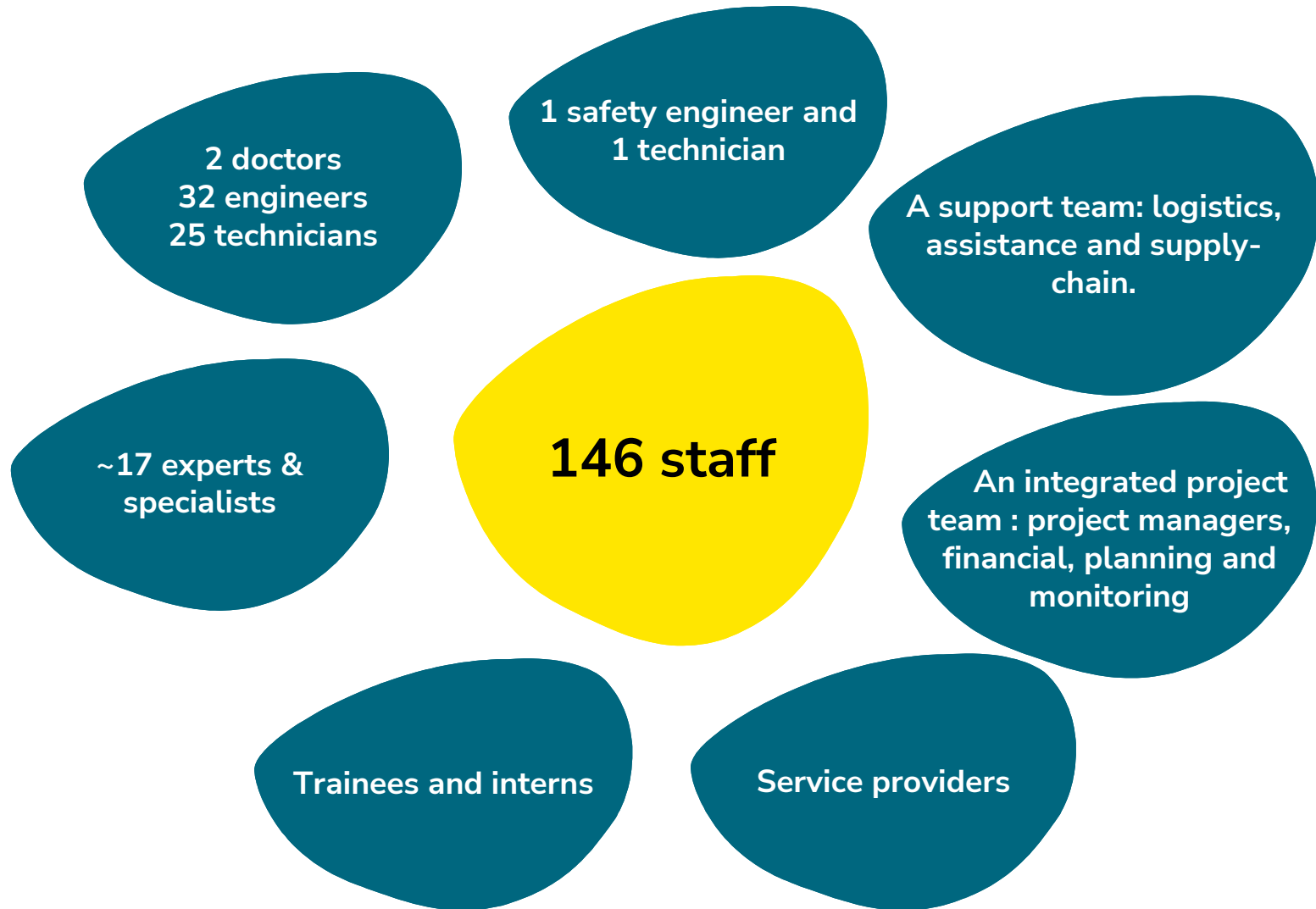
Our activities

Instrumentation and Metrology

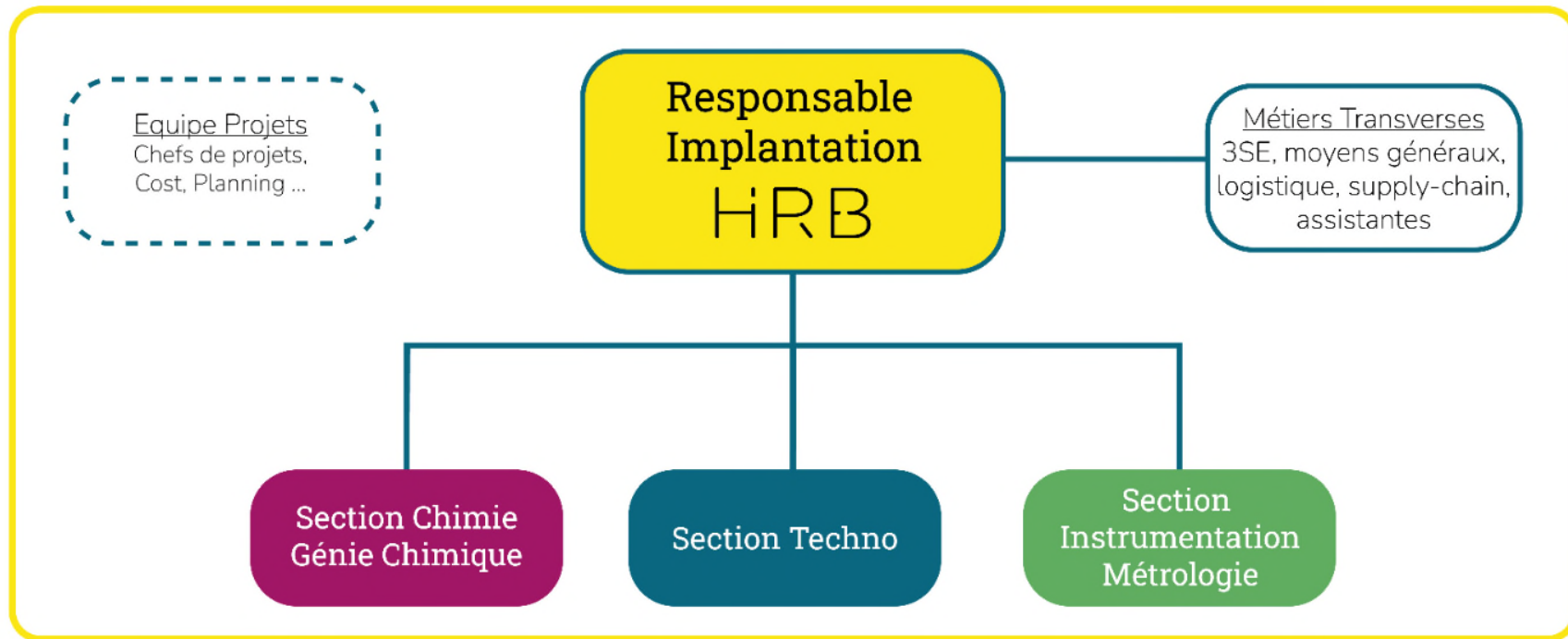
Intelligent sensors and digital twins.
Vibration analysis.
Demonstration and showcase of intelligent sensors.



Our human resources



Our organization



Our certifications



Norme ISO 45001 :
Occupational health
and safety
management

Norme ISO 14001 :
Environmental
management system

**Our
certifications**

Norme ISO 9001 :
Quality management
system

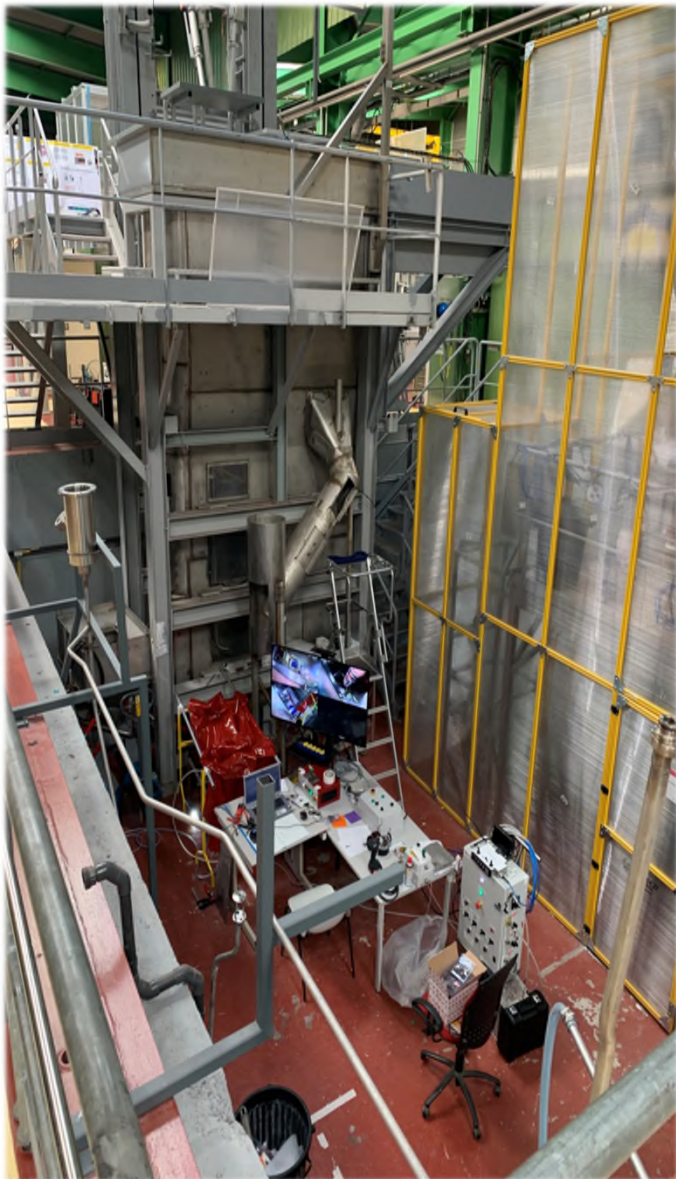
Norme ISO 19443 :
Nuclear quality
management



In support of our activities: Our logistical means

Significant logistical means:

- A hall with a surface area of 3000 m²
- About 40 testing areas
 - 5 pits
 - 3 lifting bridge
- Utilities (water, air, effluent treatment)
- Ventilated chambers, telemanipulators, etc.
- A worksite office.





In support of our activities: Our 3 laboratories



The Chemistry laboratory:

Development of analytical methods
hysico-chemical analysis of samples
from D&Q tests.



The Materials laboratory:

- Preparation of specimens
- Corrosion testing, electrochemical testing, and metallographic analysis.



The Cementation laboratory:

- D&Q of cement formulations for waste immobilization
- Characterization of matrix behavior over time (short / medium term).

Our testing means



In the Chemistry laboratory

Preparation equipment:

oven, ovens, hot plates, microwave, centrifuge, grinder, balances, filtration system, ultrasonic bath ...

Analytical means: ICP - AES, ion chromatography, gas chromatography, TOC meter, UV-visible spectrometry, IR, potentiometry / conductimetry, viscosimetry, particle size analysis, X-ray fluorescence, density meter ...

In the Cementation laboratory:

Preparation equipment:

balances, thermobalance, oven, mixers with standardized paddles, standardized or specific molds.

For property monitoring: torque measurements (Viscoklick, Starvisc), Marsh cone, spreader table, automatic Vicat prismometer, adiabatic calorimeters, standardized press, micrometric comparator, Blaine permeabilimeter (specific surface area measurement) ...

In the Materials laboratory

Preparation equipment:

saw, manual/automatic polisher, hot-melt coater.

Testing means:

potentiostats, electrochemical and galvanic cells adapted to boiling nitric acid environments, reflux assembly, oil bath circulators, oven, ovens, balances, ultrasonic bath.

Material analysis means:

durometer, digital microscope x20 to x5000, profilometer ...



In support of our activities: Our workshops



The workshop and techno box:

Modification of tools and production of small mechanical parts with high responsiveness for projects.



The key figures (2022 report)

- ✓ 146 employees
- ✓ 120,000 hours of R&D testing per year
- ✓ 40 Solidworks 3D CAD stations
- ✓ Around 40 modular testing areas
- ✓ More than 50 pilots per year
- ✓ More than 50 test reports per year
- ✓ More than 200 on-site intervention procedures per year

Your contacts at HRB

Servane DUBOIS

Site Manager

02.33.02.38.00 ou 09 77 43 74 00

servane.dubois@orano.group

Julie MARGUERIE

**Person in charge of the
Chemistry & Chemical
Engineering division**

julie.marguerie@orano.group

Guillaume GOSSELIN

**Person in charge of the
Technology division**

guillaume.gosselin@orano.group

Stéphane LEMIERE

**Person in charge of the
Metrology & Instrumentation
division**

stephane.lemiere@orano.group

To develop, qualify, and industrialize new processes and technologies...

**A dynamic multidisciplinary team
at your disposal**



And technical resources adapted to your needs