



ACTIVITY REPORT 2020



ANDRA

MANAGING RADIOACTIVE WASTE IN FRANCE

AND ENSURING THE SAFETY OF CURRENT AND FUTURE GENERATIONS.

Andra is a government agency operating under the auspices of the ministers of energy, research and the environment, respectively. It is independent from the radioactive producers.



AN AGENCY MADE UP OF DEDICATED MEN AND WOMEN WITH BROAD SKILLS AND KNOWLEDGE



50 YEARS OF EXPERTISE IN STORAGE OF RADIOACTIVE WASTE



REMAINING OPEN TO SOCIETY AND TAKING PUBLIC CONCERNS INTO CONSIDERATION IN DECISIONS AS MUCH AS POSSIBLE



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EDITORIAL



Pierre-Marie Abadie

CHIEF EXECUTIVE OFFICER

H

How did Andra cope with the Covid-19 crisis?

P.-M. A. The health situation resulting from the Covid-19 pandemic impacted the Agency, but we managed to adjust to prioritise the health of our employees, while ensuring the essential functions of our facilities, namely security, safety and environmental monitoring. All of Andra's staff remained engaged, and I would like to thank them for that. Before lockdown, the Agency had already begun a process to allow more teleworking, and that certainly helped us during the crisis.

How were the Agency's activities impacted?

P.-M. A. We remained focused on the progress of our activities. We also continued collecting and receiving packages of radioactive waste. The health restrictions did, of course, have some consequences, in particular when it came to meetings in person. Many events had to be cancelled or postponed, and our centres received fewer visitors than usual. Despite this, we innovated with new communication and information channels, since maintaining our connection with the public was

important to us. It is during such times that solidarity can be shown, and we, on our level, were able to contribute to the collective effort by offering certain establishments some of our own stocks of masks and antibacterial gel.

What notable progress was made in Andra's projects and activities?

P.-M. A. In 2020, we submitted our Declaration of Public Utility (DUP) application dossier to the relevant government bodies for Cigéo. This was the result of significant work, presented in more than 3,000 pages, of which the impact study is the most important component. The project is progressing on other levels, with, for example, the installation in Froncles, in the Haute-Marne department, of a demonstrator of the funicular planned for Cigéo, the continuation of our consultation programme and the new experimentation phase called "Chantier 4" at the Underground Research Laboratory. The year 2020 also marked the 20th anniversary of the Laboratory's creation. That's 20 years of dedication to research and the development of a unique project using extraordinary scientific infrastructure. The year 2020 also saw

progress in the Acaci (Augmentation de la capacité de stockage du Cires [Cires storage capacity increase]) project in Aube. This project is important for the management of very low-level radioactive waste, and we have decided to collaborate extensively with the public and local residents on its development. But there was one other type of event, no less essential, which took place at the Manche disposal facility: the renewal of our contract with radioactive waste producers for site monitoring and maintenance.

What are the plans for 2021?

P.-M. A. The year 2021 will still be impacted by the health crisis, but we will continue to fulfil our missions and progress in our projects with the same high standards. Important meetings are planned at each of our facilities. In Meuse/Haute-Marne, the DUP application process will continue, with the public inquiry to be held by the end of the year. The year 2021 will also see the finalisation of the creation authorisation request, to be submitted in the beginning of 2022. In parallel, consultations on the project will be implemented even more broadly, with new subjects of discussion with the public: the industrial pilot phase and the governance of Cigéo. For the Acaci project, the preliminary consultation is scheduled in May/June 2021, under the auspices of its guarantors. Finally, in Manche, the teams will remain mobilised for re-examination of the safety of the site and hold discussions with the Nuclear Safety Authority (ASN) and the Institute for Radiological Protection and Nuclear Safety (IRSN).



Operate

the two existing surface disposal facilities, in Aube, dedicated to mainly short-lived low- and intermediate-level waste (LILW-SL), the Aube disposal facility (CSA), and very low-level waste (VLLW), the Industrial facility for grouping, storage and disposal (Cires).



Monitor

the Manche disposal facility (CSM), the first French surface repository for low- and intermediate-level radioactive waste, now closed.



Study and design

long-term storage solutions for waste still requiring a solution, namely:

- long-lived, low-level waste (LLW-LL);
- long-lived, high-level (HLW) and intermediate-level waste (ILW-LL): the Cigéo project.

activities

TO ENSURE A MISSION OF GENERAL INTEREST: PROTECTION OF THE POPULATION AND THE ENVIRONMENT



Inform and encourage dialogue

with the public



Fulfil

a public service mission for:

- collection of old radioactive objects held by individuals (glowing watches, medical objects containing radium, natural laboratory salts, certain minerals, etc.);
- cleanup of old sites with radioactive pollution;
- establishment every 5 years of a *national inventory of radioactive materials and waste* on French soil.



Preserve

the memory of disposal facilities



Share

and utilise the Agency's know-how abroad

Organisational chart

AS OF 31/12/2020



Adolphe COLRAT

CHAIRMAN OF THE BOARD
OF DIRECTORS



**Pierre-Marie
ABADIE**

CHIEF EXECUTIVE OFFICER



Sébastien CROMBEZ

DIRECTOR OF SAFETY,
ENVIRONMENT AND WASTE
MANAGEMENT STRATEGY



Sébastien FARIN

DIRECTOR OF
DIALOGUE AND FORESIGHT



Frédéric LAUNEAU

DIRECTOR OF
THE CIGÉO PROJECT



Marc LEGUIL

DIRECTOR OF
ENGINEERING



David MAZOYER

DIRECTOR OF
THE MEUSE/ HAUTE-MARNE
FACILITY



Frédéric PLAS

DIRECTOR OF
RESEARCH AND
DEVELOPMENT



Fabrice PUYADE

DIRECTOR OF
HUMAN RESOURCES



Gaëlle SAQUET

SECRETARY GENERAL



Patrice TORRES

DIRECTOR OF INDUSTRIAL
OPERATIONS AND DIRECTOR OF
ANDRA'S INDUSTRIAL CENTRES
IN THE AUBE

Our teams in 2020

STAFF (AS OF 31/12)

674 employees
 (as well as 23 PhD students and 27 apprentices)

57 recruitments on permanent contract in 2020

Men **59%**
 Women **41%**

Engineers and executives **71%**

OETAM **29%**

*Workers, employees, technicians and supervisors.

DISTRIBUTION OF STAFF BY SITE

The Manche disposal facility **8**

Châtenay-Malabry (headquarters) **410**

Andra's centre in Meuse/Haute-Marne **168**

Andra's industrial centres in Aube **88**

"In a year dominated by the health crisis, we gave special attention to the quality of life of our employees at work, especially those working remotely, for example by offering practical guides or webinars. The year 2020 was also punctuated by an important relocation on our Châtenay-Malabry site, during which we assisted the employees involved. Finally, new applications were deployed for collaborative work and for centralisation of HR information for employees, and progress was made in promoting digital simplicity, with organisation of a *cleaning week* dedicated to cleaning out email boxes."



Fabrice Puyade,
 DIRECTOR OF HUMAN RESOURCES

FINANCES 2020

Budget execution:

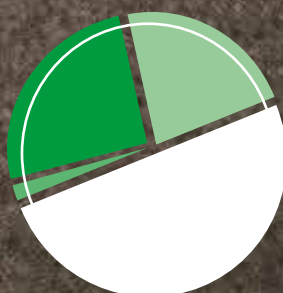
€228 M

The Cigéo project is funded by the three main entities of the nuclear power sector (EDF, CEA and Orano) from **a tax allocated for research and a special contribution** for design studies of facilities and preliminary works (see opposite).

Funding of activities

Commercial contracts **25%**

Government subsidy **1%**



Research tax **20%**

Special contribution **54%**

LOCAL PURCHASES 2020

Nearly 20 million euros

in orders, respecting the principles of public orders, with local companies in the Meuse, Haute-Marne, Aube and Manche departments where the Agency's facilities are located

Ethics and society committee

FIRST FIVE-YEAR REPORT

The first term of the Ethics and Society Committee at Andra (CES) ended in 2020 with the drafting of an opinion on how to rethink the territorial insertion of the Agency's projects. Here is a look at the missions and contributions of this entity tasked with issuing opinions and recommendations on consideration of ethical and societal issues related to management of radioactive waste.

C

reated in the end of 2015 and attached to Andra's Board of Directors, the CES is made up of qualified persons with varied expertise at the national and international level: in health, environment, participation, sciences and techniques, community, etc. Its mission is to explain, advance, provide opinions and evaluate the Agency on its consideration of ethical, citizen, and societal issues, dialogue and public involvement, and the orientation of research conducted in the area of social sciences.

Valuable insight

In its last opinion published in November 2020, the CES revisited the place of communities in the Agency's activities and sought to consider certain questions in greater depth: what place should the local population have in selection of the site of a radioactive waste disposal or storage facility? How can we ensure that local needs are expressed in the project definition? How can we jointly build a veritable community project with local stakeholders?

Active contribution

Since its creation, the CES has provided three other opinions to Andra. Two of them were on governance of the Cigéo geological disposal project. In particular, the CES recommended that public involvement in establishment of governance be largely open and based on concrete proposals accessible to the greatest number of people possible. It also emphasised the pluralism of governance and the coordination needed between the local and national levels. Finally, within the context of public debate on the National Plan for Radioactive Materials and Waste Management, the CES provided an opinion in 2019, more specifically on the management of long-lived high-level (HLW) and intermediate-level waste (ILW-LL). This document analyses the ethical and political implications of the two technical options of geological disposal (Cigéo) and storage.

13

The number of members of the CES in the end of 2020 (their term was renewed in 2021)

4

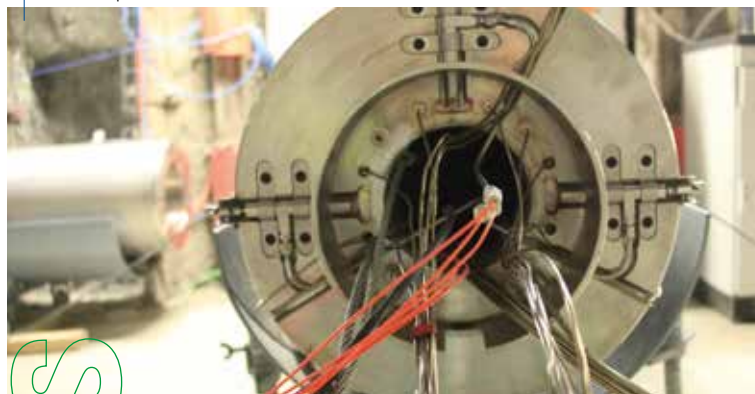
The number of opinions published by the CES (they can be found at andra.fr)



Rémi Barbier,
Chairman of the CES

"Chairing a committee was a first for me. It was both an exciting and demanding responsibility. Exciting, since we reflected on and contributed in some way to subjects relating to the great challenges that our generation, and the next ones, will have to face. Demanding, as even if we only have four general meetings per year, we are all involved in visiting sites, hearing experts and local stakeholders, and writing opinions we hope will be relevant and useful."

Scientific experimentation with a heated sensor.



SCIENTIFIC COUNCIL

Andra's Scientific Council is renewed for five years

Created by the ministerial decree of 30 December 1992, Andra's Scientific Council was renewed by a joint order of the ministers in charge of the environment and research, respectively. Its 12 members are French and foreign experts selected by the ministries on Andra's proposal. The High Commissioner for Atomic Energy is an ex officio member.

The Scientific Council issues opinions on the research and development strategy, research programmes and findings presented by the Agency. It also relies on committees specialised in certain areas: the Steering and Monitoring Committee of Andra's Underground Research Laboratory (COS) and the Steering and Monitoring Committee of the Perennial Environmental Observatory (COS-OPE). These latter two were also renewed in 2020.

QUICK AND EFFECTIVE MANAGEMENT OF THE COVID-19 EPIDEMIC

From the very beginning of the Covid-19 crisis, Andra adapted its work organisation to protect the health of its staff, while continuing its essential activities. From the first lockdown to the second wave at the end of the year, a look at the system implemented in the midst of an unprecedented situation.

Facility safety and security

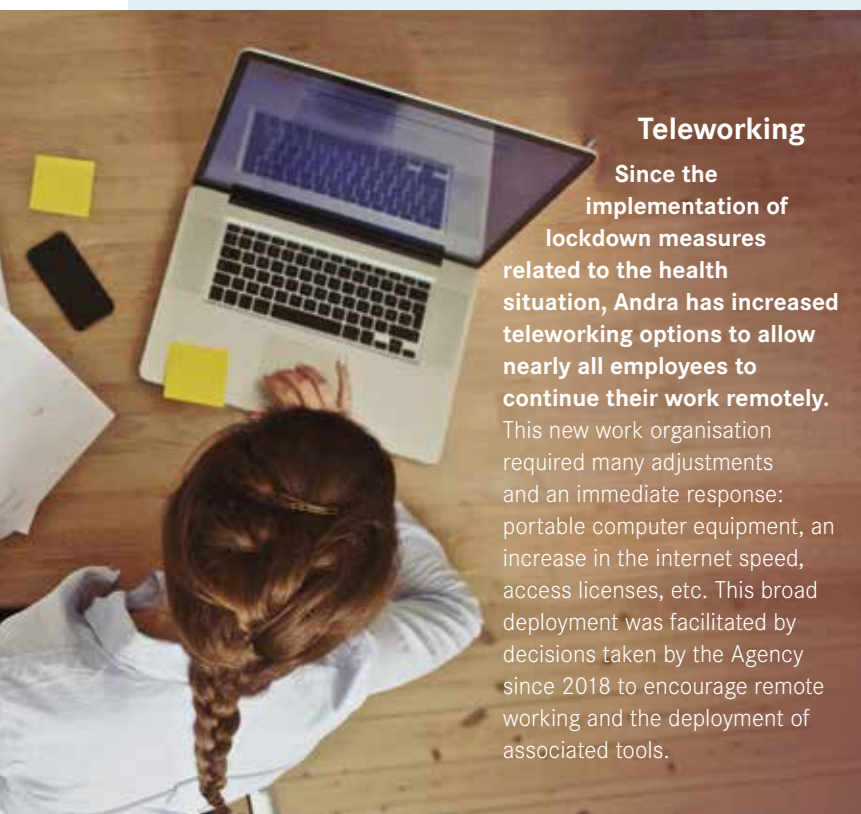
The security of facilities, and in particular the safety of radioactive waste disposal facilities, remained among Andra's major concerns throughout the health crisis.

During the first lockdown, the Agency limited activities on sites to strictly essential functions: security, nuclear safety, environmental monitoring, management of radioactive waste for the continuity of certain indispensable activities, such as power generation or medical treatments. During the second lockdown, an adapted system provided for continuation of industrial activities at the facilities in Aube, with construction sites for radioactive waste disposal, or works in the Underground Research Laboratory ("Chantier 4"), as well as surface disposal sites (shaft sinking zone, atmospheric station at Houdelaincourt) at the facility in Meuse/Haute-Marne.



Thierry Prot, Head of the Protection and Risk Prevention Department at the Meuse/ Haute-Marne Centre

"During the first lockdown, the safety systems on the Meuse/Haute-Marne site were maintained at the same level as before, even if operational activities were interrupted. This allowed us to ensure protection of the facilities, as well as monitor the proper operation of the different monitoring and industrial information systems, and, where necessary, mobilise on-call Andra staff and technical staff."



Teleworking

Since the implementation of lockdown measures related to the health situation, Andra has increased teleworking options to allow nearly all employees to continue their work remotely.

This new work organisation required many adjustments and an immediate response: portable computer equipment, an increase in the internet speed, access licenses, etc. This broad deployment was facilitated by decisions taken by the Agency since 2018 to encourage remote working and the deployment of associated tools.



Health measures

From the start of the health crisis, Andra implemented prevention measures to ensure the safety and security of people on its sites with respect to the Covid-19 pandemic.

After the Recovery Plan (PRA), following the first lockdown, the Agency outlined, for each site, the national protocol implemented in the end of August 2020 by the Ministry of Labour, Employment and Insertion. Measures applied include: mask wearing, adoption of health protection habits, limitation of conference room capacity, alternating access to eating areas and cleaning of working spaces. Specific rules were also defined for people accessing the underground facilities at the Meuse/Haute-Marne Centre.



Philippe Sueur,
IT Department Manager

“We systematically provide employees with laptops when we renew equipment and for several years now we have been moving all our processes, as well as verification and validation circuits, to electronic and paperless formats. The firewall and networks have also been redesigned to allow a greater number of employees to safely connect to the Agency’s network from off-site.”

Local support

Involved for more than 25 years now in the local life of the communities surrounding its sites, Andra took action to support local stakeholders impacted by the Covid-19 crisis.

The Agency restructured its sponsorship programme to support solidarity actions in its local communities and to maintain its financial support of local associations as much as possible. In Meuse/Haute-Marne, a specific budget was also allocated to help certain communities nearby to reduce the digital divide, accentuated by Covid-19, and to assist economic, association, and medical entities weakened by the crisis.

Environmental monitoring

During the lockdown period, environmental monitoring was part of the essential functions maintained by Andra without interruption on and around the different sites, in Aube, in Manche and in Meuse/Haute-Marne. Designed to protect the population and the environment from risks related to radioactive waste, Andra’s disposal facilities are covered by a comprehensive measurement and sampling system (water, air, plants, etc.) to ensure that their impact remains minimal. Adjustments in organisation made it possible to ensure the continuity of these monitoring operations, while limiting the number of persons on site. In Meuse/Haute-Marne, the environmental inventories established for the Cigéo geological disposal facility were maintained during the lockdown period, after obtaining permission from the prefect.

Local sampling of the Aube disposal facility.





Information and dialogue

Closure of its sites during the first lockdown led Andra to develop new tools to maintain communication with the public.

The Andra@home portraits also allowed some fifteen employees of the Agency to present their job from home, via selfies and videos. The Aube disposal facility (CSA) and Andra's Underground Research Laboratory in Meuse/Haute-Marne "opened their doors" online in the form of virtual visits accessible on a computer, telephone or tablet. This was a unique occasion to discover the CSA's activities, by the inspection of radioactive waste packages upon their arrival on the site and until their placement in storage, or to descend 490 meters in the ground to learn how the laboratory galleries are dug and what works and research are carried out there.

636

The number of Andra employees equipped to work from home after the start of the first lockdown

2,580,000

The number of data points acquired each day thanks to the data acquisition and management software at the Meuse/Haute-Marne Centre. Though the scientists and engineers could not access the Underground Research Laboratory or environmental stations during the first lockdown, they were able to continue their missions via their tool for viewing data and monitoring experiments



Solidarity

In the spring of 2020, Andra contributed to collective efforts to fight the Covid-19 epidemic.

The Agency donated masks and personal protective equipment (gloves, Tyvek paper coveralls, mobcaps, shoe covers, etc.) to local health care establishments and staff, while keeping a sufficient

stock for the proper operation of its various facilities. Along with this initiative, many individual contributions were provided by employees: homemade masks, design of protection visors using 3D printers, etc.



Laurent Schacherer,
Head of the Department of
Production, Maintenance and
Facilities Management at Andra's
Industrial Facilities in Aube

"Given the varied missions of the department on the two industrial sites in Aube, relying on subcontractors, and considering the uncertainties inherent in operational missions, the physical presence of department agents was necessary during the first lockdown. Furthermore, experience feedback has shown that when work organisation is well thought out and upstream and substitutions are available, a number of tasks can be carried out remotely. During the second lockdown, we implemented an organisation with 60% of staff present, with nearly all of missions, in particular operational missions, maintained."

10

PREPARATION OF CIGÉO

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Submission of the Declaration OF PUBLIC UTILITY APPLICATION

In 2020, Andra officially submitted to the government the preliminary public inquiry preceding a Declaration of Public Utility (DUP) for the Cigéo disposal facility. This was a major step in the project's progress.

It was 03 August 2020 when Andra submitted the preliminary public inquiry preceding the declaration of public utility for Cigéo, the project for geological disposal of high-level, long-lived radioactive waste, to the Ministry of Ecological Transition. This application aims to obtain recognition of the public utility of Cigéo and is an important step for the project. After consideration by the government, members of the public will be able to obtain information and give their opinion, as part of a public inquiry planned for the end of 2021. After this, the declaration of public utility of Cigéo can be decided by a decree of the Prime Minister, after opinion of the State Council. The dossier, as submitted by Andra, is currently accessible on Andra's website.

A key milestone

The DUP is a reaffirmation of the general interest of the Cigéo project and strong political support of the State in the local communities of the project. It allows Andra to acquire the land required for creation of the Cigéo disposal facility in the event of a breakdown in amicable negotiations, which are always the preference of the Agency. It also paves the path for other authorisation applications relating to development works that are crucial for the creation of Cigéo (preventive archaeological works, construction of road, rail, electricity and water networks, etc.). Many other authorisations will still need to be obtained thereafter for the Cigéo project. In particular, the creation authorisation decree (DAC), associated with urban development authorisations, a compulsory step before the effective start-up of the first installations of the disposal facility.



See
ALL DOCUMENTS
OF THE DOSSIER



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The public inquiry dossier

Compiled by Andra's teams and partners, this dossier includes a general presentation of the Cigéo project, the characteristics of the disposal facility and legal and administrative documents or documents concerning dialogue, economy, urban planning and the local community. The project impact study is the centrepiece of this dossier. It presents the current condition of the environment and the expected consequences—positive and negative alike—of the project in terms of environment (atmosphere, soil, subsoil, water, natural surroundings, human environment, etc.), health or development of the area. It also presents the measures implemented by Andra to prevent, reduce and offset negative impacts.



David Mazoyer,
Director of Andra's Meuse/
Haute-Marne Centre

"The declaration of public utility would be a significant recognition from the State, and a positive signal to the local community and to those who have been waiting to see the fruition of the project for a long time now. It does not give the "green light" for construction of Cigéo, but recognises the public utility dimension of a project working on a subject concerning everyone: management of the most dangerous, long-lived radioactive waste."

The public inquiry dossier is:

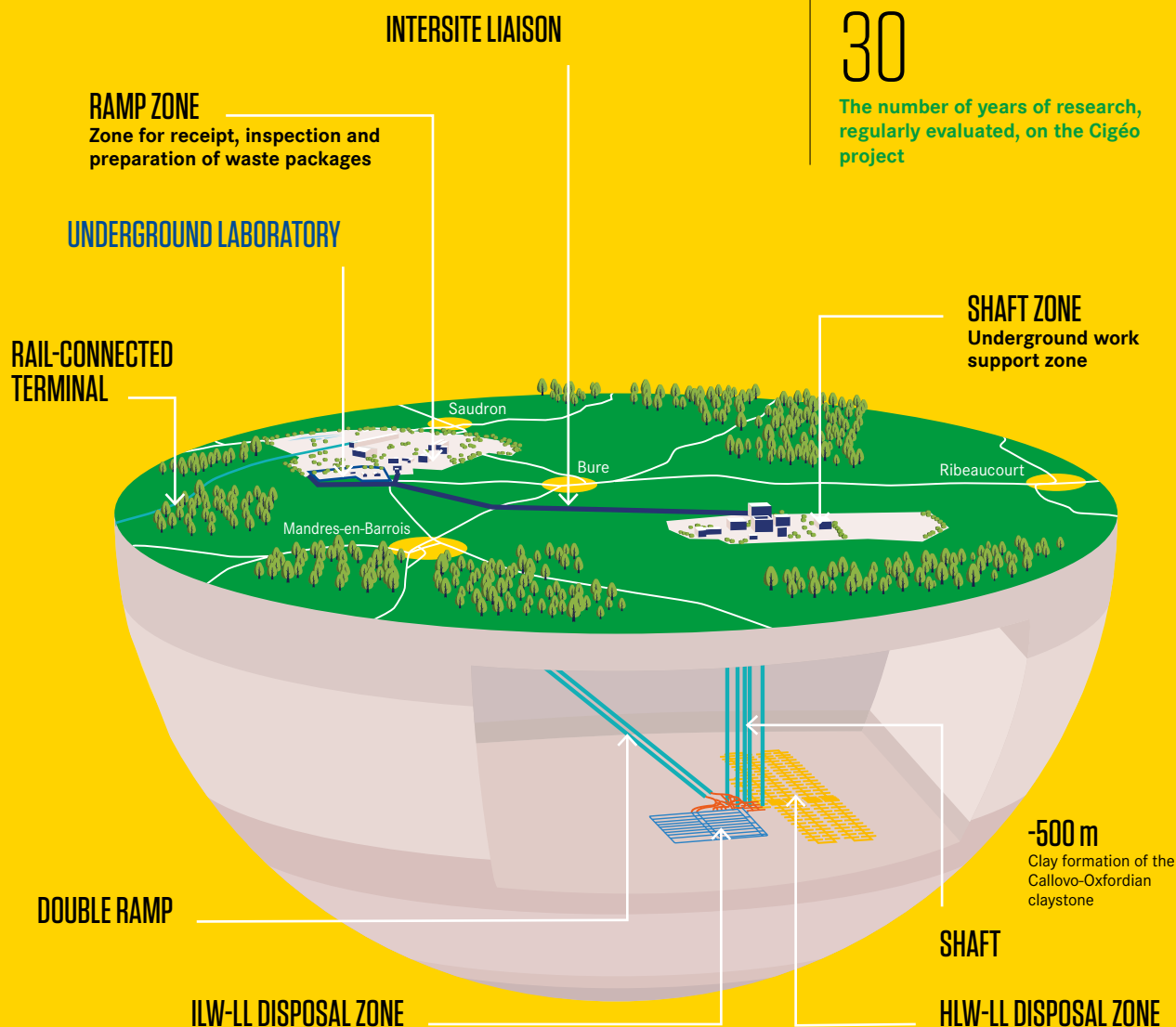
More than

3,000
pages

19
parts



The Cigéo disposal facility



3

The number of laws enacted and the number of public discussions organised as part of the Cigéo project

83,000 m³

The volume of long-lived high-level (HLW) and intermediate-level radioactive waste (ILW-LL) to be stored in Cigéo

30

The number of years of research, regularly evaluated, on the Cigéo project

CIGÉO
IS

A large national

scientific and industrial project

A storage project planned to be reversible for more than 100 years,

throughout its operation

Hundreds of jobs created:

between 1,000 and 2,000 jobs during construction and around 500 jobs during operation

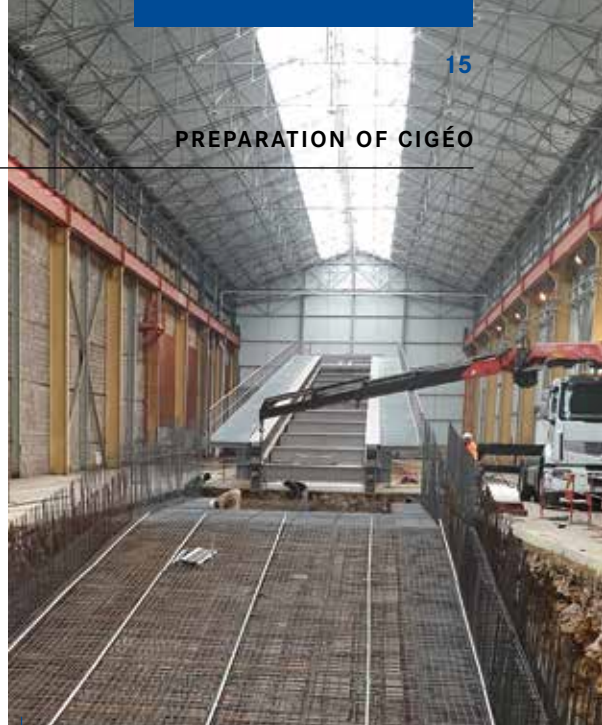
A contribution to local development

and the guarantee of an industrial activity for more than a century

Installation

OF THE DEMONSTRATOR OF THE FUNICULAR TO BE USED IN CIGÉO

The year 2020 was marked by the completion of renovation works in Froncles (Haute-Marne) in the building to be used for tests on the Cigéo funicular prototype. These tests will ensure that the future funicular will be able to safely transport the radioactive waste packages.



Assembly of the funicular demonstrator.

T

he Cigéo disposal facility project requires implementation of many technical innovations to ensure the safe operation of the facility. One of them is the transport of radioactive waste from the surface to the underground facilities, to take place via a 4 km-long gallery with an incline of 12% and equipped with a specially designed funicular. This transport system must be tested in advance to qualify important elements for safety, such as the brake systems on the funicular. To this end, a full-scale test bench designed by a company specialising in cable transport system manufacturing was built and placed in an old industrial building in Froncles, near Andra's underground research laboratory.

End of rehabilitation works

Significant development works had to be completed to rehabilitate the site and allow it to accommodate the bench: earthworks, creation of a semi-buried ramp, masonry works, new roofing, structural work, connection to the electrical network, etc. These works were completed in 2020, with the help of many companies from the region. Nearly 80% of budgets related to the installation and construction of the test bench were allocated locally (metal structures, electrotechnical works, mechanical works, etc.) The first tests, planned for 2021, will cover the three emergency braking systems on the funicular: the emergency brakes, the ultimate emergency brakes and the end-of-track bumpers.

230 tonnes

The loaded weight of the vehicle that will perform that various brake tests on a 12% incline



Jean-François Hervé,
Head of the Mechanical
Equipment and Processes
Department

"Normally, on technical installations or processes already existing, the practice is to utilise operating feedback to adjust equipment. First, we will need to demonstrate that this test bench is the most representative of reality, and that if we perform these tests, they will be 100% reliable. For example, the integrated system used on the funicular allows for "duplication" of safety braking equipment and uses particularly innovative technologies. We are going to check that it is operating as we defined it."

A prototype of the generator that will power the Cigéo sensors

To convert the heat emitted by a radioactive element—americium—into 12 V direct current power supply for wireless sensors: this is the goal of the RTG (*Radio-isotopic Thermal Generator*) project, one of the selections of the call for projects launched by Andra in cooperation with the National Research Agency (ANR) as part of the "Investment in the Future" programme. A prototype simulating the experiment (without americium) was finalised in 2020 and is exhibited in the Technological Space of the Meuse/Haute-Marne Centre. This innovative system may one day be used to supply the wireless sensors designed for use in monitoring at the Cigéo facility.

Installation of the RTG prototype at the Meuse/Haute-Marne Centre.



FIND OUT MORE:
<https://www.andra.fr/nos-expertises/innover>

SUPCOUS

Fostering consultation

ON THE CIGÉO PROJECT

In an effort to involve local entities and the population in decisions concerning Cigéo, Andra listens attentively to the expectations, concerns and proposals of all interested parties. In 2020, this approach led to public consultations on different topics related to the project.



Organisation and implementation of the future site

In 2020, Andra launched a new consultation dedicated to impacts of the future Cigéo site on its immediate environment and the life of local residents. This is part of the cycle of consultations on the topic *Development of the space and living environment*, initiated in the end of 2019. During a first meeting organised on 27 October 2020, the participants were able to discuss the future Cigéo site, its planning as foreseen by Andra, and the different types of works involved. During this sequence, the subjects of habitat, employment and training were also addressed.

At the end of this meeting, Andra planned to dedicate a working group to the future project, with the goal of bringing together twenty-some participants with diverse backgrounds: construction professionals, elected officials, local associations, representatives of the Clis (the local information and monitoring committee of the underground laboratory), etc. This working group will monitor the evolution of the project over time and contribute to the establishment of a charter presenting a framework of best practices. Designed to evolve as the project progresses, this charter will be provided to all companies working on the site.

Connection to the electrical transmission system network

In addition to a first consultation held by Andra in 2019 on the topic of energy, from the 13th of January to the 12th of February 2020, the French transmissions system operator, RTE, organised a preliminary consultation on connection of the Cigéo project to the electricity transmission network. This operation foresees the creation of a 400,000/90,000 V electrical transformer connected next to the existing power line, two more electrical substations dedicated to Cigéo and three underground connections.

After two public meetings and one site visit, the public was able to give their input on the different location options proposed by RTE and to learn about the measures planned to take into account economic development, landscape integration and project impact reduction issues. In May 2020, RTE specified the decisions taken after this preliminary consultation. The preferred location of the participants shall now be subject to more detailed environmental and design studies. Moreover, RTE has committed to continuing

Between 2018 and 2020, public dialogue efforts resulted in:

27

organised meetings

4

topics addressed: water cycle, transport infrastructure, power supply, landscaping of the space and living environment

1160

participants: the general public, elected officials, government and community representatives, associations, etc.



Public consultation meeting on the organisation of the future Cigéo site.

this consultation and organising a new public discussion event.

Compatibility of urban planning documents

As part of the public consultations on the topic *Development of the space and living environment* launched in the end of 2019, from 6 January to 14 February 2020, the Ministry of Ecological Transition organised a preliminary consultation on the compatibility of urban planning documents (MEDCU) with the Cigéo project. Three documents were covered: the territorial consistency diagram (SCoT) of Pays Barrois, the local intercommunal urban development plan (PLUi) of Haute-Saulx and the local urban development plan (PLU) of Gondrecourt-le-Château.

This procedure, specific to land development projects, will be used to adjust or update certain provisions of the urban planning documents to make them compatible with the Cigéo project, if it is declared to be of public utility. The report on this consultation, published in May 2020, commits Andra and the Ministry of Ecological Transition to following up on the observations in the compatibility dossiers. In September 2020, the information sharing meeting on the roadmap for Andra's public consultation presented to the public information on how participant proposals have been taken into account. More operational subjects shall be covered in future public consultation meetings on development of the space and living environment.

A web platform dedicated to public consultation

Maintaining public dialogue with total transparency is an important and constant priority for Andra, in particular in the context of a health crisis limiting opportunities for face-to-face meetings. For this reason, in November 2020, Andra launched an online platform dedicated to public consultation concerning all projects and activities under its supervision. This interactive space allows citizens to remain informed about public consultation events (programmes, videos, reports and summaries of consultations, etc.), and to participate in various ways: to ask questions, share opinions and ideas, etc. This allows each and every person to collectively contribute to discussions and reflections on radioactive waste management.



Julie Quentel,
Consultation Manager

"The digital tools provide interactivity and ensure the accessibility of the consultation. It is sometimes easier to express yourself at home than to participate and speak in meetings. The dedicated online platform for public consultation thus aims to adapt to the expectations and new practices of the public when it comes to dialogue and consultations on projects, to allow for more participation and further enrich the decisions we take."



Discover
**THE DEDICATED
CONSULTATION
PLATFORM**

FOCUS



The public utility declaration application for the Cigéo disposal facility was an opportunity to assess the 20 years of public participation in development of the project.

FIND OUT MORE:
urlr.me/vcbBf



A progress report from the guarantors of public consultations on Cigéo

As requested by Andra in 2017, the National Commission of Public Debate (CNDP) appointed persons responsible for post-public debate consultations on the Cigéo project, currently represented by Marie-Line Meaux and Jean-Daniel Vazelle. In May 2020, they published a first progress report. This document presents the consultations held by the Agency between November 2017 and May 2020, as well as the main lessons learned. It also presents a first assessment of the persons responsible on this approach and prospects for consultations going forward.



Read the
progress
report



20/

INDUSTRIAL ACTIVITIES



The CSM

RENEWS ITS CONTRACT WITH RADIOACTIVE WASTE PRODUCERS

In September 2020, Andra signed a new multiannual contract with radioactive waste producers for monitoring and maintenance of the Manche disposal facility (CSM).

The first radioactive waste disposal facility operated in France, the CSM is now closed. It has not received any new waste since 1994, but active monitoring and permanent inspections continue: environmental monitoring, monitoring of industrial safety, logistics, servicing and maintenance of installations, etc. These activities essential to disposal safety will be maintained for hundreds of years, along with public visits and provision of information to the public.

A long-term responsibility

These missions carried out by Andra are funded by the radioactive waste producers based on the volumes they produce, according to the “polluter pays” principle established by the environmental code. With waste stored at the CSM coming mainly from EDF, Orano and CEA nuclear facilities, these companies remain responsible for their packages over the long term.

A five-year contract

Andra and the producers sign commercial contracts every five years, on the basis of external audits and accounting history, to define the actions and studies to be carried out by Andra and their cost. For an amount of 6 million euros annually, the contract signed in 2020 covers the period until 2024. It takes into account changes expected in the contract period, both as pertains to the monitoring programme and regulatory or technical requirements adopted. It covers the operating costs of the CSM, as well as fees, taxes and insurances required for its existence.

Cap monitoring

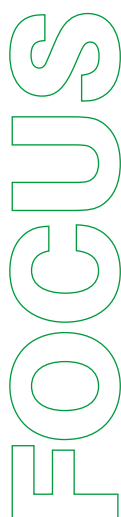


Albert Marchiol, Engineer in the Projects, Studies and Implementation Division of the Industrial Operations Department

“In October and November 2020, as part of monitoring of the CSM cap, a new testing phase was launched to proceed with the study of deviations detected on certain points of the water collection network of the facility. After detecting small infiltrations of water along the edge of the cap, investigations were carried out to determine the origin and schedule works if necessary. Although the effectiveness of the cap has been confirmed, we continue to research causes of these variations.”



Verification of a drain on the CSM cap.



ASN inspections on the site

In December 2020, the Nuclear Safety Authority (ASN) performed an inspection of the CSM to verify Andra's fulfilment of its regulatory obligations related to environmental monitoring. In particular, it was a chance to check the impact of the Covid-19 health crisis on the site monitoring activities. The ASN concluded that “the organisation defined and implemented on the site to respond to nuclear safety issues appeared satisfactory, and in particular ensures the continuity of indispensable activities at the facility.” It did find some difficulties, which were limited and “representative of other similar facilities in this period” with certain inspections delayed and trainings postponed.

Environmental monitoring

In 2020, the Manche disposal facility maintained a very low impact on its environment.



0.000000043 millisieverts
The impact of releases to the sea per year

0.00017 millisieverts
The impact of releases into the Sainte-Hélène river per year

2.9 millisieverts The mean impact of natural radioactivity in France



2,170 samples taken on and around the CSM

12,000 radiological and physico-chemical analyses

A new milestone

IN THE OPERATION OF ANDRA'S INDUSTRIAL CENTRES IN AUBE

The project to increase the storage capacity authorised by the Cires (the Industrial Facility for Grouping, Sorting and Disposal) reached a new milestone in 2020, with Andra's decision to begin a preliminary consultation under the supervision of guarantors. In parallel, operation continued at the Cires and the Aube disposal facility (CSA), with new construction works for the disposal of radioactive waste.



P

Progress update on the Acaci project

Launched in 2018, the Cires disposal capacity increase project (Acaci) is one of the solutions studied by Andra to face the challenges inherent in management of the very low-level waste (VLLW) that will be produced in the years to come, in particular during dismantling of nuclear facilities. Given the expected deliveries of VLLW waste indicated by the producers in the coming years, Cires, which has been accepting this waste since 2003, will need to reach its authorised disposal capacity—650,000 m³, by 2028-2029.

Greater disposal capacity

The Agency is thus studying the possibility of increasing the authorised disposal capacity of Cires, without changing the area of the existing site disposal zone and while maintaining its safety level. This option is possible thanks to the disposal optimisation actions implemented during recent years: redesign of disposal cells, increase in the total waste stacking height, etc. In total, these changes provided savings of 56% of the disposal area as compared to the initial design. The Acaci project consists in using this area to dispose of around 250,000 m³ of additional VLLW, bringing the total capacity of the facility to more than 900,000 m³. This solution would

provide disposal availability for an additional 10 to 15 years, which would leave the Agency more time to evaluate the relevance of other solutions for management of other VLLW, even if alternative management options currently being studied are implemented. According to the data of the *National Inventory of Radioactive Waste Materials*, the total volume of VLLW waste produced in France would be between 2,100,000 and 2,300,000 m³ after dismantling of nuclear facilities.

A building project with public consultation

In addition to the design studies already carried out since 2018, the Acaci project will be covered in more in-depth studies and an environmental authorisation procedure. The goal: to define the best land development options, with the local community, while limiting its impact on the population and the environment.

It is in this spirit, and in line with its policy of dialogue and openness to society, that Andra decided to voluntarily undertake a preliminary consultation process under the supervision of guarantors appointed by the National Public Debate Commission (CNDP), in the end of 2020. Scheduled to take place in May and June of 2021, several subjects were to be addressed, including management of excavated soil and environmental monitoring.



Fanny Gérard,
Acaci Project Manager

"The preliminary consultation and project design studies on which we have been working since 2018 will contribute to completion of the environmental authorisation application dossier, which may be submitted in 2022. It will then be examined by government authorities and subject to a public inquiry. If the project is authorised, around four years of works will be required before the new authorised disposal capacity of Cires will be operational, sometime in 2028-2029."

FOCUS



Inspection of a radioactive object.

Collection of radioactive objects at the home of Pierre and Marie Curie's granddaughter

In February 2020, Andra went to the home of Hélène Langevin-Joliot, Pierre et Marie Curie's granddaughter, to collect several radioactive objects inherited from the family, including a wardrobe. As long-lived low-level waste (LLW-LL), these objects were sent to the Andra building provided for this purpose at Cires, pending an appropriate disposal solution. Each year, Andra collects an average of around one hundred radioactive objects at individuals' homes. Passed on from generation to generation, often forgotten in a basement or attic, they are the witnesses of the beginning of the history of radioactivity. They tend to mainly contain radium, used in the 1900s in timepieces, cosmetics and medical treatments, before their harmful potential was discovered. The collection of these objects is a public service mission provided by Andra.



Nicolas Benoit,
Cleanup Project Manager

"Most often, it is items of which we know the activity, such as radium fountains. We can just send our specialised carrier in that case. But from time to time, as was the case with Hélène Langevin-Joliot, we have a request for objects that are unfamiliar to us, of which the radioactivity levels are unknown or are massive, such as the family wardrobe. In this cases we must characterise the objects, inspect them, then package them."

N

ew sites at Cires and the CSA

Two major sites mobilised

Andra's teams in Aube in 2020. At Cires, the works on construction of disposal cell number 20 for very low-level waste started in August and were finished in the beginning of 2021. This new cell will be used after cell 19, currently in operation. During its preparation, then operation, phase, cell 20 will be protected from extreme weather by the Premorail®, a roof shelter system developed and patented by Andra's engineers. Used up until now to protect cell 18, which will henceforth be placed under a protection cap, it was transferred to cell 20 during the summer. Made up of sections mounted on rails, the Premorail® offers the advantage of being

easy to move, without requiring cranes or work at height, and with little dependence on weather constraints. This means reduced time and reduced costs for transfer from one cell to the other.

During this time, at the CSA, the last disposal structure construction campaign, which started in 2018, continued. This campaign is the 10th since the start of operation of the facility in 1992. This unit will be made up of four lines, each made up of five structures.



Digging of a disposal cell at Cires.

152

The number of disposal structures closed at the Aube disposal facility in the end of 2020, since its start of operation in 1992

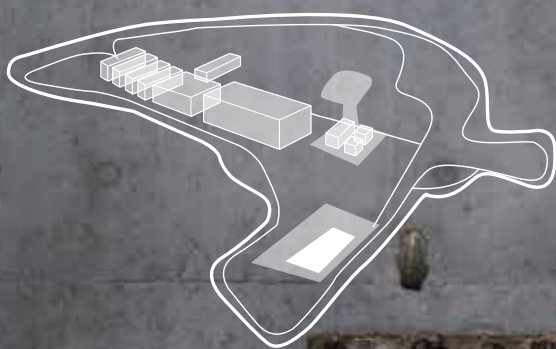


Construction of a disposal structure at the CSA.

Key figures for 2020

ANDRA'S INDUSTRIAL CENTRES IN THE AUBE

THE AUBE DISPOSAL FACILITY (CSA)



1,000,000 m³

Authorised capacity for packages of low- and intermediate-level waste, mainly short-lived



35.3%

of authorised volume filled at the end of 2020

8,229 m³

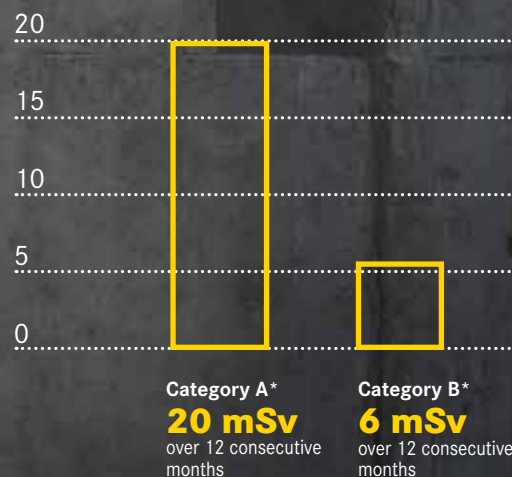
of radioactive waste disposed of in 2020

ANNUAL DOSE OF THE MOST EXPOSED WORKERS

CSA:

0.896 millisieverts

REGULATORY DOSE LIMITS PER CATEGORY
(excluding natural radioactivity and medicine)



* Workers professionally exposed to ionising radiation.

ENVIRONMENTAL MONITORING AT THE CSA

2020 results of the survey given to radioactive waste producers



Relationship quality:

98%

satisfaction



Adjustment to specific needs:

98%

satisfaction



Management of radioactive waste:

98%

satisfaction

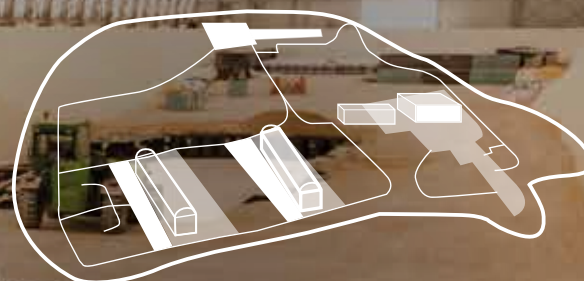


Approximately **2,320** samples taken from the environment for **15,570 radiological and physico-chemical analyses**



0.00000019 millisieverts: the radiological impact determined for a reference group for the year 2020, i.e. a dose far below the regulatory limit and impact from radioactivity

CIRES:

0.338 millisieverts**CIRES (THE INDUSTRIAL FACILITY FOR GROUPING, STORAGE AND DISPOSAL)****650,000 m³**

Authorised capacity for packages of very low-level waste

Limit established by Andra for workers in the restricted zone
5 mSv
over 12 consecutive months

For the public
1 mSv
over 1 year

63.4%

of authorised volume filled at the end of 2020

15,974 m³

of radioactive waste disposed of in 2020

ENVIRONMENTAL MONITORING AT CIRES

More than
1,500 radiological
analyses



No presence of artificial radionuclides added by the activities of the facility in the environment

**148 m³**

of radioactive waste packages from non-nuclear power activities received in 2020 in the grouping building

20 m³

of radioactive waste packages received in 2020 in the storage building

In total,

875 m³

of waste stored

03

SCIENTIFIC AND TECHNICAL

KNOWLEDGE

The Meuse/Haute-Marne underground research laboratory – 25

Knowledge in radioactive waste materials – 26

Environment – 27



Workers at the bottom of an underground laboratory gallery.

1,000

The number of meters of high-level waste (HLW) cell demonstrators built at Andra's underground laboratory at the end of 2020

2 km

The cumulative length of the underground galleries of Andra's underground laboratory in the end of August 2020

The Underground Research Laboratory BLOWS OUT ITS 20 CANDLES... AND CONTINUES TO PREPARE FOR THE FUTURE

For 20 years, Andra's Underground Research Laboratory in Meuse/Haute-Marne has been studying the geological disposal the most dangerous radioactive waste, in preparation for implementation of the Cigéo project. A look at two decades of scientific and technological advances, and the emblematic works carried out in 2020.

A

Iready twenty years of scientific and technical research

and experimentation

Started in 2000, Andra's underground laboratory in Meuse/Haute-Marne has been the site of experiments dedicated to the Cigéo geological disposal project for 20 years now. The goal: to conduct studies in conditions as close as possible to reality, in order to define and guarantee the security and safety requirements of the disposal site while in operation and in the long term. After 20 years of activity, the laboratory has now accumulated 2 km of galleries dug 490 metres below the surface, in which dozens of experiments have been conducted (mechanical, thermal, chemical, hydraulic, digging, monitoring, etc.) and more than 6 billion data points have been collected.

An exceptional infrastructure

Thanks to this extraordinary infrastructure that has become an international window into French research on geological disposal in clay formations, Andra's teams were able to demonstrate the feasibility of disposal in the deep geological layer, in a first phase of studies conducted between 2000 and 2005. Since 2006, they have pursued their efforts to, on the one hand, consolidate knowledge on key processes, such as the mechanical behaviour of the rock, the degradation of materials or the migration of radionuclides; and, on the other hand, to prepare the industrial work of Cigéo with demonstrators of underground structures and disposal components that are closer and closer to reality (large-diameter galleries, intersections, high-level waste cells, etc.) or the development of monitoring systems (optical fibres, wireless communication technologies, etc.).



Sarah Dewonck,
Director of the Underground Research
Laboratory Department and Assistant
to the Director of the CMHM

"The Underground Research Laboratory is a source of innovation. Here, we are studying scientific and technical advances together to design a disposal facility not existing anywhere else yet in a claystone layer. There are many issues involved, leading scientists and engineers at Andra to come up with innovative ideas, for monitoring or for covering/support of the structures."



Transport of excavated rock and earth.



Olivier Alavoine,
Manager of the
Technological
Testing Programme

“We are making progress on many fronts, and this requires well-managed logistics and a rigorous organisation of experienced teams who are familiar with the constraints of the Laboratory. Whether we’re talking about the scientific and technical staff of Andra, the prime contractor or the companies in charge of excavation and works, we are all gaining experience together, with each year.”

A

very active 2020 in the Underground Research Laboratory

The experiments conducted in the Underground Research Laboratory continued in 2020, with “chantier 4”, working to achieve the industrial potential of Cigéo. The many digging and technological and scientific activities will support the upcoming Cigéo creation authorisation request, by demonstrating the feasibility of the proposed solutions.

The construction of three new disposal cell demonstrators for high-level waste (HLW) has begun, along with digging of a four-branch intersection. Unprecedented in the Underground Research Laboratory, this type of intersection will be used frequently in Cigéo. It is thus important to properly understand the effect of such digging on the rock, as well as the behaviour of the supporting layer. For this reason, sensors have been inserted in the rock to monitor changes in the structure during and after excavation. Finally, work has begun on a first full-scale disposal cell prototype for long-lived intermediate-level waste (ILW-LL).

In parallel, testing of gallery backfill has begun to test implementation, the choice of materials and the behaviour of the various selected technical solutions, on a scale representative of Cigéo. Moreover, one hundred-some boreholes were drilled during the year to continue analyses on gaseous exchanges between disposal cells and galleries, on the behaviour of the rock during excavation for underground structures, and on interactions between the rock and the materials used (steel, concrete, etc.).

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SPOT, a robot dog for monitoring of Cigéo?

In a complex and contained environment such as Cigéo, robotic systems offer an attractive solution for investigation and monitoring of galleries during the construction and operation phase. A partnership has been created with the Nancy École des Mines, which has purchased a robot equipped with artificial intelligence, the dimension and agility of which allow it to move in spaces otherwise inaccessible to or potentially dangerous for humans. This robot, named *SPOT* and sold by Boston Dynamics, is being tested in Andra’s Underground Research Laboratory with the goal of developing its autonomy to allow it to move alone and relay information of all sorts, such as the detection of anomalies.

Organising management OF RADIOACTIVE MATERIALS AND WASTE, WITH FULL TRANSPARENCY

P

Publication of *Essentials 2020* of the *National Inventory of Radioactive Materials and Waste*

Like every year, *Essentials 2020* presents changes in stocks of radioactive materials and waste produced in France (stocks as of end of 2018), as a supplement to the publication of the *National Inventory*, every five years*. *Essentials 2020* also mentions the “prospective inventories” of the last edition of the *National Inventory*: estimates of quantities of materials and waste according to several different scenarios related to the future of the facilities and France’s energy policy in the long term. The *National Inventory* is a valuable tool for orientation of radioactive waste and materials management policy.

Preparation of the fifth edition of the PNGMDR

In February 2020, the Ministry of Ecological Transition and the Nuclear Safety Authority presented the decisions taken after the public debate organised in 2019 on management of radioactive materials and waste. The goal: to prepare the next National Plan for the Management of Radioactive Materials and Waste (PNGMDR). This fifth edition, currently being drafted, will draw on the opinions and contributions of the post-public debate consultations of the PNGMDR, organised from September 2020 to April 2021.

*Since the law of 7 December 2020, amending article L. 542-12 of the Environmental Code.



A busy year

FOR THE PERENNIAL ENVIRONMENTAL OBSERVATORY

Air, water, flora and fauna, etc. Despite the health crisis, the Perennial Environmental Observatory (OPE) continued its natural environment observation activities carried out for preparation of the Cigéo project.

C

reated by Andra in 2007, the Perennial Environmental Observatory is tasked with establishing a baseline inventory of the environmental condition (water, air, soil, forests, fauna, etc.) of the surroundings of Cigéo before its construction, then to monitor changes during the phases of construction and operation of the disposal facility. To this end, OPE teams and partners conduct regular studies in the natural environment surrounding the current Agency facilities in Meuse/Haute-Marne. In 2020, despite restrictions related to Covid-19, the OPE maintained its observation campaigns and collected valuable data, while complying with the health regulations.

Update of ecological inventories

From April to June, several observations of the forest flora were carried out, along with identification and counting of amphibians, insects, birds, etc. The information collected is entered in the OPE's databases, and improves understanding of the environment, in particular the relationships between different habitats.

Study of waterways

In July, a fish observation campaign was carried out in many waterways of the Saulx, Ornain and Marne river basins. These animals are good indicators of the ecological quality of the aquatic environment. The study of their behaviour, morphology and health can be used to assess any disturbances in the environment linked to the construction of Cigéo.

Inspection of beehives

Very sensitive to environmental changes, bees are also an excellent indicator used for environmental monitoring. The OPE has therefore established an observation network, in partnership with local beekeepers, including five beehives, four of which are equipped with sensors (temperature, humidity, bee count, etc.). Several beehive inspections were carried out between March and October 2020, with samples of honey and pollen taken for analyses.

Renovation of the atmospheric station

Inaugurated in 2011, the atmospheric station of Houdelaincourt measures the quality of air and greenhouse gases to establish a baseline of the atmosphere in the area of the disposal site and to evaluate any changes related to Cigéo. It was expanded and renovated in 2020 to ensure optimal quality measurements.



Paul-Olivier Redon,
Engineer at the OPE

"In 2020, OPE finalised a new map of the soil at the scale of 1:50,000. Knowledge of the nature of the soils gives us indications concerning the volumes of land required for the Cigéo project, the amount of dust that may be released, etc. The map also helps us define wet zones to better protect them. It also helps us measure the "services" we are rendering to the soil, for instance by storing carbon, favouring agriculture, etc."

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Andra elected representative of the associate members of the AllEnvi alliance

Since July 2020, Andra has been an associate member of AllEnvi, the National Research Alliance for the Environment. Since its creation 10 years ago, AllEnvi has brought together French research organisations for collaboration on environmental research issues. The election of the Agency highlights the central place of the environment among its missions, its interaction with the environmental research world and its expertise in connecting industrial and environmental dimensions in the management of major projects.

104/

OPENNESS TO SOCIETY

AND THE INTERNATIONAL COMMUNITY

Memory — 29
Information and dialogue — 30
International — 31

Preserving and transmitting memory

THE FIRST IDEAS OF THE “GRAPHIC PROSPECTS” ART RESIDENCIES

After five months of work, the winners of the call for “Graphic Prospects” art residencies, created at the initiative of Andra and Le Signe, revealed the first results of their reflections in March 2020.

How can we inform future generations of the existence of disposal facilities and the danger of the radioactive waste they contain, over a span of several thousands of years? It was for reflection on this topic that Andra launched an art residency programme in 2019, as part of its “Memory for Future Generations” programme, with Le Signe, the national graphic design centre in Chaumont. The five-month project was completed in March 2020.



Publication of a work on memory of the Canal du Midi

In the end of 2020, Andra published a work on memory concerning the Canal du Midi. This was the first title of the collection *Construire et transmettre la mémoire* [Building and Transmitting Memory], created by the Agency to report on progress made in its programme on memory related to radioactive waste repositories. The study of management of the memory of the Canal du Midi, a structure that has seen centuries, offers valuable insight with respect to studies conducted by Andra on the mechanisms involved in the processes of building and transmitting memory.

Movement towards a universal message?

The two winners, graphic designer Sébastien Noguera and graphic design theorist Charles Gautier, presented the fruits of their research during a learning day open to a large audience of students. During their work on the project, the two specialists first created a set of reference documents on languages, signs and their transmission throughout the centuries. This research provided valuable lessons on which they then drew to create a sign system that would be comprehensible over the long term. They suggest doing this through the combination of many existing signs and letters, along with new pasigraphies, systems of writing using graphic symbols representing words or ideas (ideograms), that can be understood by all. The fruits of their efforts and their first conclusions will be exhibited at Le Signe in 2021, on the occasion of the international biennial of graphic design. The next step to be taken to implement their work and begin creating a sign system comprehensible for several thousands of years will be to obtain input from other specialists including archaeologists, typographers and historians, and to make this part of an exchange on an international level.



Jean-Noël Dumont,
Head of the Memory
Programme

“While the disposal facilities are designed to be safe without human maintenance once closed, even in the case that they are forgotten, measures should be taken to pass on their history as long as possible, regardless of any future social or political upheavals.”

4

The number of pillars of the Memory programme: regulatory documentation and archives, societal interactions, studies and research, international collaboration

Launch of an international platform on memory

Andra is one of the members of the new international platform IDKM (*Information, Data and Knowledge Management*) dedicated to knowledge and memory related to radioactive waste repositories. Created by the Nuclear Energy Agency (NEA) in January 2020, this initiative should foster the creation of solutions for the preservation of memory to prevent loss of knowledge, bringing together as many stakeholders possible with complementary expertise. Since its launch, IDKM has brought together 26 organisations representing 11 member countries of the NEA and the European Union.



IDKM kick-off meeting.

Actions

FOR INNOVATIVE COMMUNICATION

Because radioactive waste is a subject concerning all citizens, Andra is finding innovative ways to inform and interest as many as it can.

Due to the health crisis, Andra primarily utilised online media to remain in contact with the public and continue to respond to their questions. Between July and November 2020, a series of online conferences were organised on the Cigéo project (“Cigéo: where, when how?”, “Cigéo: what are the risks? what are the impacts?”, “The Underground Research Laboratory: 20 years of research for Cigéo”) and, more broadly, on issues brought up by the Agency’s activities (“Should a person fear living next to a radioactive waste repository?”). As for the “100,000 years” podcast produced by Binge Audio in partnership with Andra, it proposed to listeners an investigation in six episodes, released between October and November 2020, in which journalist and documentarian Anne-Cécile Genre discusses people’s relationship with long periods of time.

Science fiction makes its own contribution

It was also in 2020 that the two winners of the writing contest on the future of radioactive waste, launched in the end of 2019 by Andra, in partnership with *Usbek & Rica*, were selected. In this contest, the Agency gave carte blanche to science fiction lovers to contribute in their own way to the debate on radioactive waste management, based on their vision of the future. With its ability to stimulate the imagination, science fiction provides the free space to wonder about the future of our societies and allows us to take a stance on the philosophical, political and societal implications of the subject.

CSA on the screen

In another initiative in line with its innovative communication approach, Andra co-developed an educational show called *Aventure Andra* with the Aube Canal 32 TV channel. Broadcast in September 2020, it presented to spectators the different jobs and activities of the Aube disposal facility (CSA) in the company of four contenders from Aube, including two local media personalities, who face off in entertaining challenges. The CSA also opened its doors to the public, much like Andra’s Underground Research Laboratory, in the form of virtual visits in light of the restrictions related to the health crisis.

Information and dialogue in 2020:

Nearly

6,000

visitors welcomed at Andra’s facilities due to health restrictions

100

local projects supported

950,000

prints of Andra’s journal

Approximately

1,000

publications on social networks and 25,000 followers (Twitter, Facebook, LinkedIn, Instagram)

35,000

views of the newsletter of Andra’s Mag

Around one hundred

meetings with universities, bloggers, association presidents, involved citizens, etc.

Between

50,000

and 400,000

views of videos on radioactive waste management published by YouTubers for invitations, partnerships or personal initiatives



Backstage during an online conference on the Cigéo project.





Anne Brodu,
Head of Industrial
Communication
and Innovation

"We regularly seek to innovate when it comes to dialogue with the public, since this allows us to interest as many as possible, in particular via digital tools. In this way, we were able to maintain communication with the public during the year 2020, when the health restrictions greatly reduced in-person events. It's also a chance to explore new methods of expression, helping to revive and enliven discussion on the subject of radioactive waste management."

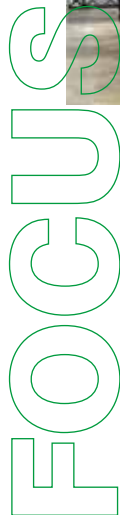


Exhibit "Voyage within and beyond the solar system".

Promoting scientific and technical culture

Andra regularly organises events at its facilities, often on the occasion of large national or regional scientific, technical or environmental meetings. These events are part of its efforts to provide information to the public, and in line with its commitment to openness and desire to promote the Agency's scientific and technical culture. The exhibit "Voyage within and beyond the solar system", organised at the Meuse/Haute-Marne Centre, invited adults and children alike, until March 2020, to discover the planets and stars. In Aube, in October, a conference was offered to the public on the Sanctuary project, which aims to preserve data on humanity on the Moon, etched on sapphire discs. Finally, in Manche, in autumn, Andra participated in the science village of Cherbourg, providing support to the Ludiver planetarium by offering conferences and visits of the photo exhibit "Volcanoes & man" organised there.

Maintaining activities ABROAD

Despite the health situation, Andra remained on course in its international relationships, continuing to share the French approach in radioactive waste management matters, collaborating with other countries or in international organisations, and utilising its expertise in other parts of the world.

In 2020, Andra continued its involvement in commissions dedicated to radioactive waste within the Nuclear Energy Agency (NEA) and the International Atomic Energy Agency (IAEA). These international entities are important spaces for information, exchange of knowledge and reflection.

Andra shares its experience to allow other countries to benefit from its experience, and the lessons learned of foreign countries also contributes to and accelerates the Agency's reflections. The common goal is to promote international standards and create consensus on good practices and responsible attitudes related to radioactive waste management.



Daniel Delort,
Head of International Relations

"Due to the health situation, our travel for meetings, visits and conferences abroad was reduced in 2020. However, we managed to keep contact with our foreign counterparts and the international community: there were more online discussions,

information was regularly posted on our site international.andra.fr and we continued our contributions to international entities in the way of online events or provision of deliverables associated with our commercial services."

8

The number of conferences and international exhibitions in which Andra participated (four in person, four online). Major events were postponed due to the health crisis

5

The number of Andra employees who travelled to Phoenix, United States, in 2020, for the Waste Management conference. An annual event bringing together more than thirty countries and more than 2,500 visitors each year to discuss radioactive waste management

13

The number of contributions made by Andra to the AIEA (meetings and publications). The Agency also made six contributions to the NEA

16

The number of countries with which Andra has commercial cooperation agreements. The Agency is also in charge of chairing the EDRAM (Environmentally Safe disposal of Radioactive Materials) until 2022. This association brings together agencies and organisations of different countries, in charge of long-term management of radioactive waste.



THE FRENCH NATIONAL AGENCY FOR
RADIOACTIVE WASTE MANAGEMENT

1-7, rue Jean Monnet
92298 Châtenay-Malabry cedex
Phone 01 46 11 80 00
www.andra.fr