



**FANC**

FEDERAAL AGENTSCHAP VOOR  
NUCLEAIRE CONTROLE



**BEL**



# Role and activities of FANC and Bel V in the cAt surface disposal

# Structure of the presentation

1. History of the licensing process
2. Overview of the license
3. Role of FANC + Bel V
  1. during construction
  2. during operation
  3. w.r.t. admissibility to disposal: “disposability”
4. Conclusion

# (short) History of the licensing process

# History of the licensing process

- 2006-2012 pre-licensing
- 2013-01-31 License Application
- 2013 → 2017 Application deemed incomplete, ~300 Q&A with NIRAS
- 2018 -> 2019 Update by NIRAS of license application
- 2019-10-03 Scientific Council of FANC gives first favourable advice with some Q
- 2019 -> 2020 National and international consultations
- 2019 -> 2023 Answers from NIRAS on first advice
- 2023-02-24 Scientific Council gives second favourable advice
- 2023-03-29 FANC proposes license to Minister of the Interior
- 2023-05-16 Publication of Royal decree granting NIRAS the license

# (brief) Overview of the license

## Overview of the license

- License for the construction and exploitation of a surface disposal facility in Dessel in accordance with its safety report
  - covers the construction of and exploitation of 34 modules arranged in two tumuli
    - Construction of first set of 20 modules can start after hold point “ready for construction”
- Structure:
  - Generic conditions (similar for all class I nuclear installations related to a.o. construction, testing, commissioning, modification, periodic safety review)
  - Disposal installation specific conditions
  - Specific reporting requirement: activity report
  - Conditions on the waste to be disposed
  - Radiologic safety requirements (radiation dose and risk to public)
  - Condition related to construction of western set of 14 modules
  - Requirements w.r.t. the “structural closure of the facility”

# Activity report

- For every 4 filled modules, NIRAS makes an activity report
- Overview of activities
- Updated inventory
- Occupational exposure
- Results of the monitoring programme
- Any incidents and accidents including lessons learnt/measures taken
- Any info requested by FANC
- This report will be made public (comment from public consultation)



# Waste criteria

- Exist as requirements on the level of the license Royal Decree and as criteria on the level of the safety report
- Example:
  - Requirements in the licence related to physico-chemical stability of waste
  - Criteria in the safety report related to exclusion of alkali-silica-reaction
- Only solid waste conditioned in a monolith
- Bounding total activity (34 modules) and activity concentration limit by critical radionuclide in the license
- Demonstration of respect of the waste criteria must be described in a 'conformity file'
- Waste must be part of an approved filling plan for 4 modules before disposal

# Closure of the modules

- Modules must be structural closed after publication of the activity report and after approval by FANC
  - No further exploitation of these 4 modules, direct access to the waste monoliths is no longer possible
- The removal of the roof and conversion in tumulus i.e. the covering of the modules in earth layers is not part of the granted license. NIRAS will have to apply for a license for closure in due time.

# Role of FANC + Bel V during construction

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- NIRAS must present the construction programme to FANC + Bel V
- FANC + Bel V can add witness points and hold points to the construction programme
- A witness points means FANC and/or Bel V is given the opportunity to witness a certain construction step
- A hold point means FANC and/or Bel V needs to approve a certain construction step/activity before the construction can be continued

# Ready for construction

The first hold point is the hold point “ready for construction”. NIRAS needs to:

- Deliver various documents concerning competency development w.r.t. nuclear safety, radiation protection, redaction of safety reports, developing a suited safety culture and quality control
- Create the necessary procedures to manage construction
- Develop a QA/QC programme for the construction
- Apply its integrated management system for the construction

# Role of FANC + Bel V during construction



- Regular follow-up meetings with NIRAS
- Various inspections on the construction site
  - The frequency depends on the evolution of the construction
- Major focus is the respect of the specifications defined in the safety report
  - Long term safety is strongly dependent on the quality of the construction
- NIRAS will apply a thorough QA system including handling of non-conformities
  - Including follow-up by health physics department, Bel V and FANC as required => may lead to dedicated inspections

# Commissioning

- Commissioning of the installation is approved by Bel V
- Bel V needs to approve the testing programme (proposed by NIRAS) that enables commissioning
- After commissioning has taken place, FANC will propose a confirmation decree to be published as Royal Decree
  - This decree allows radioactive waste disposal operations to commence

# Role of FANC + Bel V during operation



# Role of FANC + Bel V during operation

- The surface disposal facility is licensed as a class I nuclear installation to which all current regulation applies
- Nuclear safety is the first and foremost responsibility of the operator
- NIRAS has its own health physics department that operates independently from the operator NISD (NIRAS Site Dessel) and whose role is to verify that the disposal facility is operated safely and according to the regulation and its operating license
- FANC and Bel V supervise the operator and the health physics department to ensure that each performs its role

# Role of FANC + Bel V during operation

- During operation, FANC and Bel V will organise various inspections to verify safe operation of the facility
  - These inspections will be analogous to inspections in other class I facilities
- In addition, Bel V will review any modifications NIRAS wishes to make to its safety report
  - i.e. not requiring a modification of license conditions
- In case a modification requires changes to the license, a procedure similar to the licensing process needs to be followed
- Every 10 years (or depending on subject, every 4 filled modules), NIRAS needs to review its operation and identify points of improvement. FANC and Bel V oversee this periodic safety review

# Role of FANC + Bel V during operation

- In addition to the steps typical for all installations, FANC + Bel V will also approve closure of sets of 4 modules. This includes filling the spaces between the monoliths and putting a concrete slab on the modules. This doesn't include removing the metal roof nor placing the covering layers.

# Role of FANC + Bel V in admissibility to disposal

# Role of FANC + Bel V in disposability

- NIRAS needs to demonstrate the conformity of the waste with the requirements in the license and the criteria in the safety report
  - including the rules for spreading the radioactivity over the disposal installation

# Role of FANC + Bel V in disposability

- To demonstrate conformity, NIRAS will create a conformity file ('conformiteitsdossier') for groups of waste
- These conformity files need to be approved by Bel V during drafting and by FANC in its final version
  - Allows NIRAS to perform physical actions i.e. Belgoproces can start taking waste out of storage for final control and conditioning for disposal (IPM)
- These files describe any testing (types and frequencies) for the waste to demonstrate that its physical condition corresponds to its description in the conformity file. These tests will take place as the waste is unloaded from its current storage facility.

# Role of FANC + Bel V in disposability

- Once the conformity file of a waste package has been approved, NIRAS may add this package to its filling plan ('opvulplan')
- This filling plan ensures that the final location of the waste package conforms to the various limits on heterogeneity (spreading rules)
- The filling plan also needs to be approved by FANC and Bel V.
- On the basis of the approved filling plan, Belgoprocess can then operate its IPM facility to produce monoliths that fully conform to the surface disposal license and that have a foreseen placement in the disposal facility

# Conclusion



# Conclusion

- The creation of this surface disposal facility is a major step in ensuring the safety of nuclear waste management
- In every next step for the disposal facility, FANC + Bel V will perform their legal duties w.r.t. nuclear safety and protection of people and the environment for current and future generations
- The current license covers the building and operation of the disposal facility, not its closure
- FANC and Bel V will approve the conformity files and filling plan to ensure the waste is compatible with the operating license

More information:

<https://fanc.fgov.be/nl/informatiedossiers/radioactief-afval/beheer-van-radioactief-afval/berging/oppervlakteberging>



Thank you!