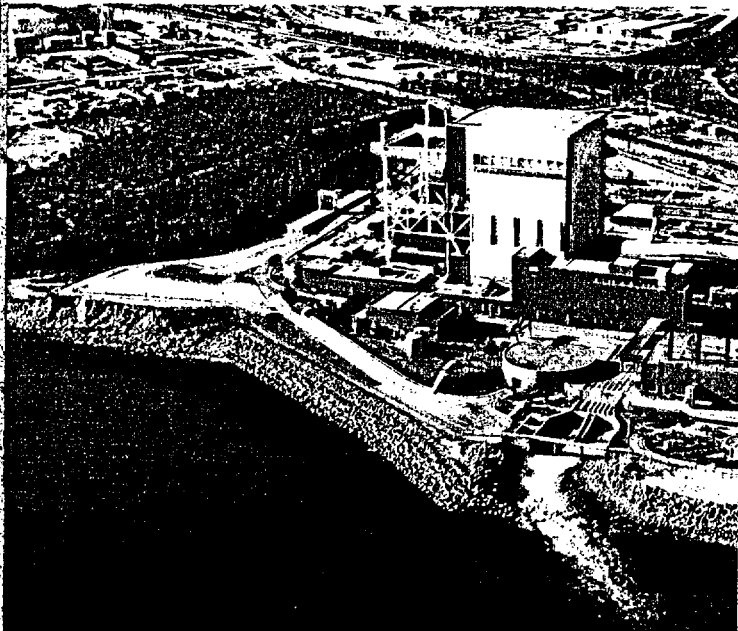


# Vandellós I nuclear power plant dismantling project

**enresa**



▲ Vandellós I nuclear power plant prior to the dismantling works.

**Background**  
Vandellós I nuclear power plant (497 MW, graphite-gas type) is located in the province of Tarragona and will be the first plant to be dismantled in Spain. The plant was shut down in 1990 following an incident affecting the number 2 turbine-generator set.

The Spanish National Radioactive Waste Company, ENRESA, was commissioned to undertake dismantling of the plant. Therefore, the company has drawn up the necessary Decommissioning and Dismantling Plan which, once approved by the Ministry of Industry and reported favorably by the Nuclear Safety

Council, will be implemented under the direction and supervision of ENRESA's technical staff.

The corresponding Environmental Impact Study has also been carried out and approved by the Ministry of the Environment with the Environmental Impact Statement.

## Activities

Project

Decommissioning and Dismantling Plan works

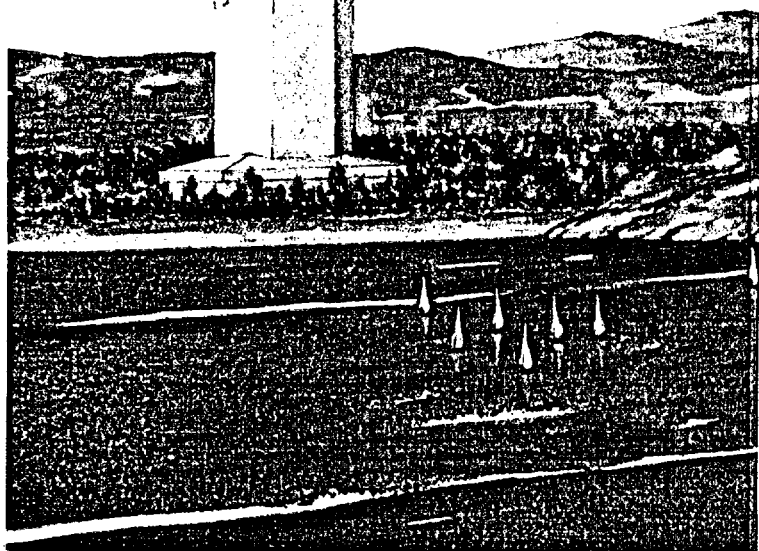
Activities prior to dismantling

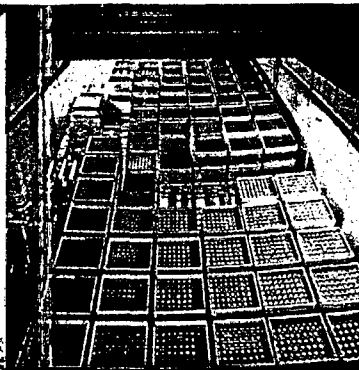
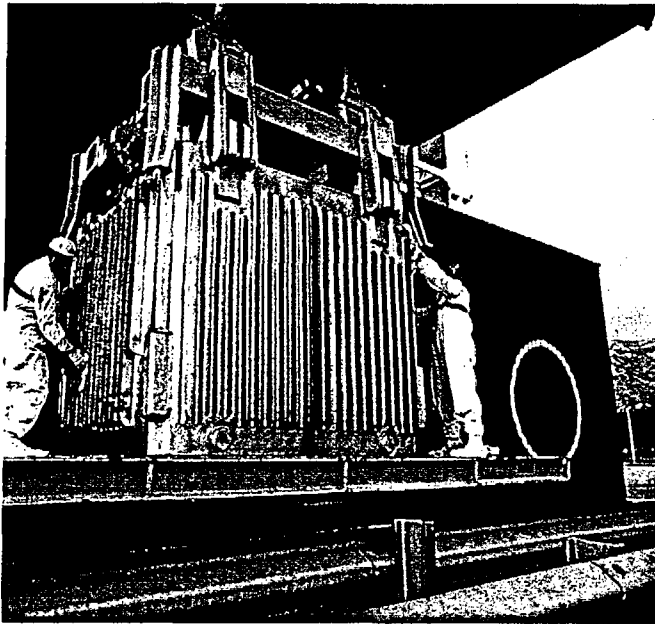
Dismantling permit

Preparatory activities for dismantling

Dismantling and waste management

Preparation of the facility for the latency period





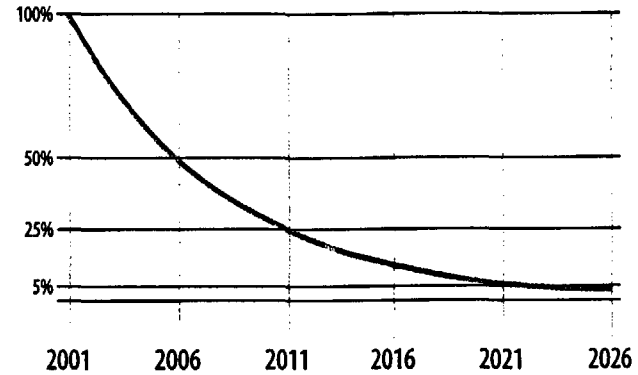
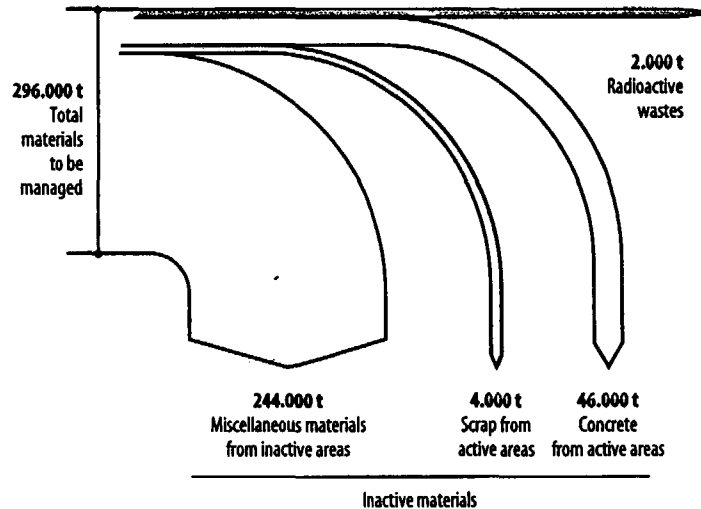
▲ Spent fuel pool.

**Waste management**

The waste management activities to be carried out are based on in-depth knowledge of the situation prior to dismantling, for which purpose a radiological map of the installation will be available.

The techniques to be used are well-known and do not

▼ Materials arising from dismantling.



▲ Radiation decay during the latency period.

differ from those commonly used in the field of radioactive waste management.

Over the next 5 years, ENRESA will handle a flow of almost 296,000 tons of materials arising from dismantling, which will be appropriately controlled and classified.

The foreseen inventory is as follows:

- 294,000 tons of *clean materials*, of which 50,000 tons are non-contaminated elements from active areas and the rest from the inactive areas of the facility.
- 2,000 tons of *radioactive wastes*, which will be conditioned and subsequently disposed of at the disposal facility.

**Budget Level 2**  
ENRESA will make an investment of 10,000 million pesetas in order to meet the objectives mapped out for Level 2 decommissioning.

**Budget Level 3**  
Performance of Level 3 decommissioning will assume an additional investment of 35,000 million pesetas.

▲ Removal of a container.

**Activities Level 2**

Prior to the activities to be carried out by ENRESA, Hifrensa, as the plant owner, has removed the nuclear fuel and conditioned the radioactive wastes arising during the operating phase.

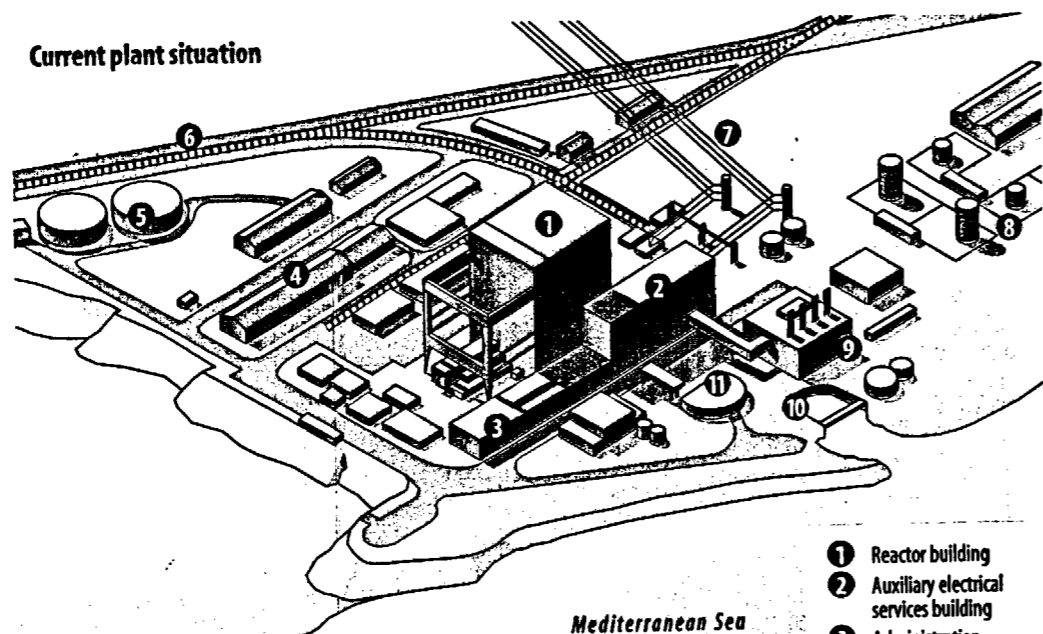
In order to meet the objectives mapped out for Level 2 decommissioning, ENRESA will perform the following activities:

- Preliminary activities for adaptation and preparation of the infrastructures for dismantling.
- Dismantling activities as such, including the decontamination of structures

and equipment, the dismantling of systems and the demolition of buildings.

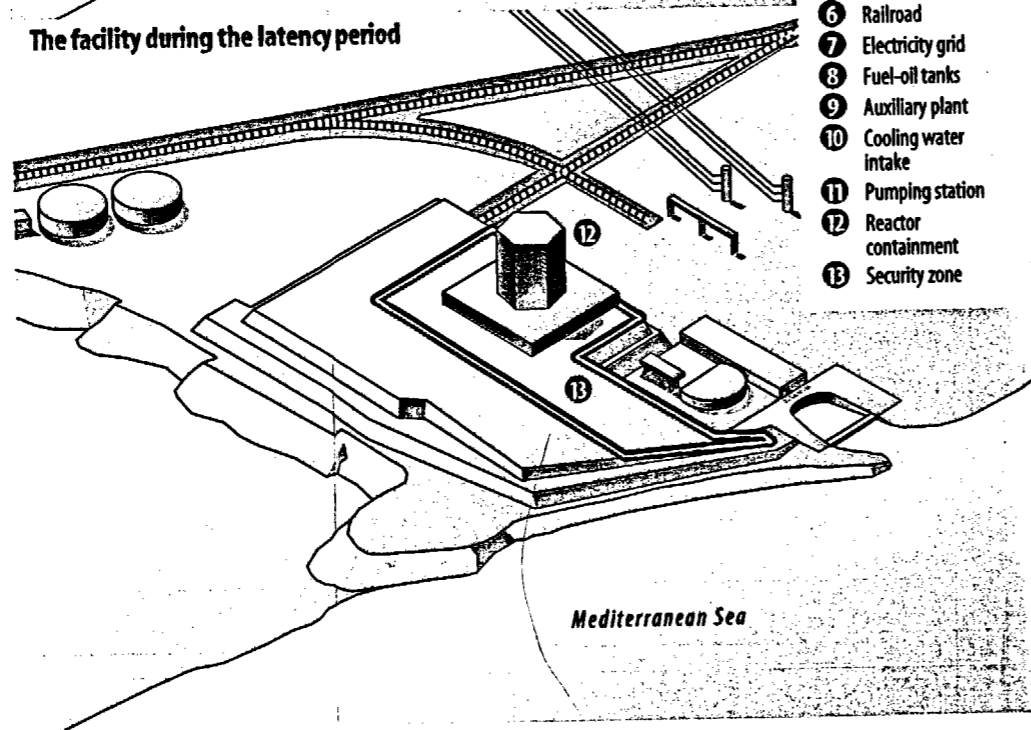
- Activities relating to conditioning of wastes in containers suitable for the prevention of dispersion and for their handling and subsequent transport.
- Removal of low and intermediate level wastes and dispatch to the disposal facility.
- Final activities relating to confinement of the reactor shield and restoration of the released site.

Current plant situation



- 1 Reactor building
- 2 Auxiliary electrical services building
- 3 Administration
- 4 Workshops and stores
- 5 Water tanks
- 6 Railroad
- 7 Electricity grid
- 8 Fuel-oil tanks
- 9 Auxiliary plant
- 10 Cooling water intake
- 11 Pumping station
- 12 Reactor containment
- 13 Security zone

The facility during the latency period



signify the release of 80% of the site in five years.

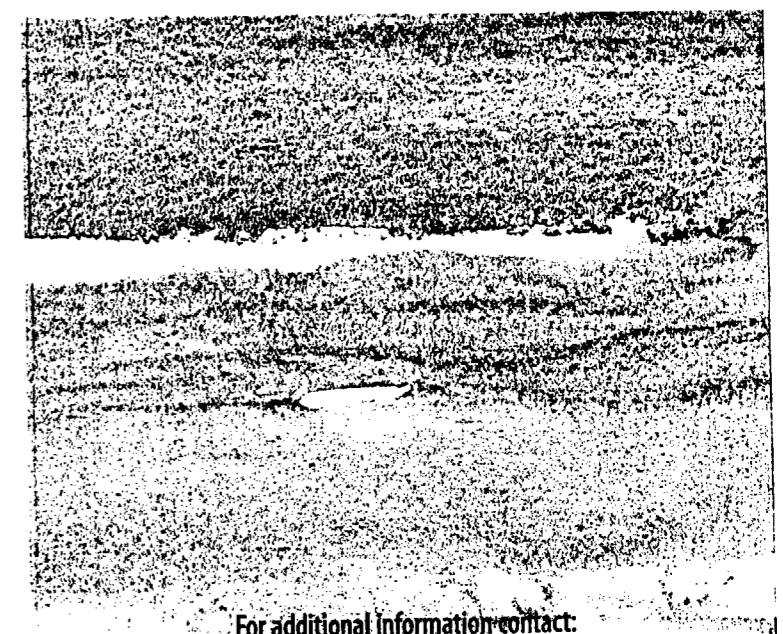
Following this period there will be a 25-year waiting period, known as latency, the aim of which is to allow the radiation inside the reactor shield to decay to levels which will facilitate the complete dismantling (Level 3 decommissioning) at minimum radiological cost. After this, the site will finally be released.

▼ Level 2 dismantling project schedule.

**Objectives Level 2**

The plan drawn up consists of disassembling and demolishing the plant systems and buildings, with the exception of the concrete shield surrounding the reactor, which will remain confined. This is what is known by the International Atomic Energy Agency (IAEA) as decommissioning to Level 2, and will

Activity	Start	End
1	1990	1991
2	1991	1992
3	1992	1993
4	1993	1994
5	1994	1995
6	1995	1996
7	1996	1997
8	1997	1998
9	1998	1999
10	1999	2000
11	2000	2001
12	2001	2002
13	2002	2003
14	2003	2004
15	2004	2005
16	2005	2006
17	2006	2007
18	2007	2008
19	2008	2009
20	2009	2010
21	2010	2011
22	2011	2012
23	2012	2013
24	2013	2014
25	2014	2015
26	2015	2016
27	2016	2017
28	2017	2018
29	2018	2019
30	2019	2020
31	2020	2021
32	2021	2022
33	2022	2023
34	2023	2024
35	2024	2025
36	2025	2026
37	2026	2027
38	2027	2028
39	2028	2029
40	2029	2030



For additional information contact:

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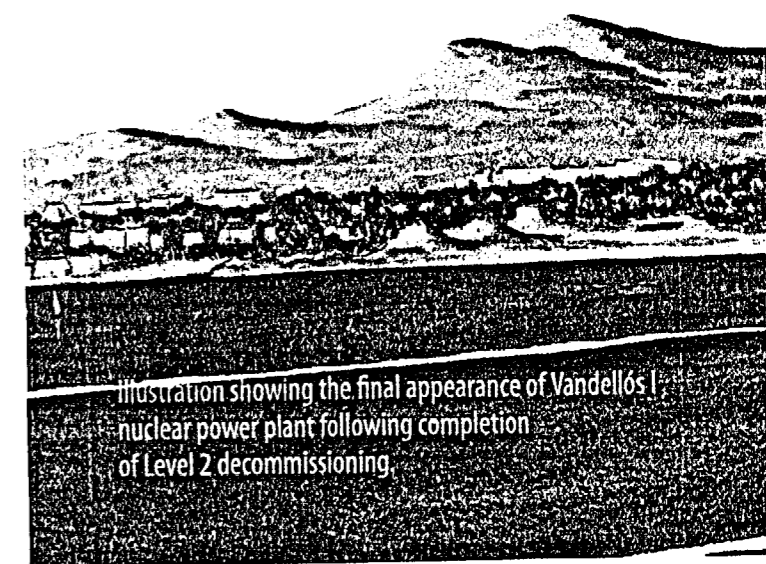


Illustration showing the final appearance of Vandellós I nuclear power plant following completion of Level 2 decommissioning.