MELTING OF RADIOACTIVE METAL SCRAP FROM THE KRB-A PLANT

Fact Sheet

Project Information

Grant agreement ID: FI1D0059

Project closed

Start date
1 July 1986

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30 April 1990

Funded under
Research programme (Euratom) concerning the decommissioning of nuclear installations, 1984-1988

Total cost
No data

EU contribution
No data

Coordinated by
Kernkraftwerk RWE - Bayernwerk GmbH
Germany

Objective

RADIOACTIVITY HOMOGENISATION AND VOLUME COMPACTION OF LOW-LEVEL RADIOACTIVE SCRAP CAN BE ACHIEVED BY MELTING. THEN, DEPENDING ON THE AVERAGE SPECIFIC ACTIVITY, THE METAL CAN BE RELEASED IN GENERAL TO THE NUCLEAR MARKET, OR STORED FOR FINAL DISPOSAL. HOWEVER, MELTING IN STANDARD FOUNDRIES WITHOUT CONTROLLED CONTAINMENT ATMOSPHERE HAS TO BE LIMITED TO SCRAP

WITH LOW SPECIFIC ACTIVITY (< 74 BQ/G), AND LARGE-SCALE EXPERIENCE WITH MELTING OF HIGHER-LEVEL RADIOACTIVE METAL SCRAP IS PRESENTLY NOT AVAILABLE.

THE WORK PROGRAMME WAS, FOR TECHNICAL AND ECONOMIC REASONS, REVISED IN A SUPPLEMENTARY AGREEMENT CONCLUDED IN 1988, AFTER EXECUTION OF ITEMS B.1. TO B.2. THE REVISION AIMS AT GAINING EXPERIENCE BY LARGE-SCALE MELTING OF ABOUT 300 T OF METAL WASTE FROM THE KRB-A DECOMMISSIONING, WITH RADIOACTIVITY LEVELS UP TO 500 BQ/G. THE MELTING WILL BE PERFORMED IN AN INDUCTION FURNACE (CAPACITY CA. 3T) IN A CONTROLLED ZONE AT THE SITE OF SIEMPELKAMP GIESSEREI KREFELD (SRG), ACTING AS SUBCONTRACTOR, THE RADIOACTIVE WASTE BEING TRANSPORTED FROM KRB TO SRG.

THE STUDY IS EXPECTED TO RESULT IN A STATEMENT WHETHER THE ABOVE PROCEDURE HAS A POTENTIAL FOR LARGE-SCALE APPLICATION.

B.1. ASSESSMENT OF PROPOSALS FOR SERVICES FROM EXTERNAL CONTRACTORS, MAINLY CONCERNING THE LEASING OF AN INDUCTION MELTING FURNACE.
B.2. DEFINITION OF A WORK PROCEDURE, INCLUDING THE SELECTION OF REPRESENTATIVE COMPONENTS FOR MELTING TESTS AND OF APPROPRIATE TECHNIQUES FOR DECONTAMINATION,DISMOUTING AND CUTTING, THE DEFINITION OF A PROCEDURE FOR THE INSTALLATION AND OPERATION OF THE MELTING FURNACE, AND A PRELIMINARY PLANNING FOR HEALTH PHYSICS PROTECTION.
B.3. PREPARATION OF LICENSING PROCEDURES FOR THE INSTALLATION AND OPERATION OF A MELTING FURNACE ON THE SITE OF SRG/KREFELD.
B.4. EXECUTION OF THE MELTING PROGRAMME ON THE SITE OF SRG/KREFELD.
B.4.1. CONCEPTION AND CONSTRUCTION OF A FACILITY FOR THE MELTING OF METAL SCRAP UP TO 500 BQ/G.
B.4.2. STUDY INTO THE NUCLIDE DISTRIBUTION DURING MELTING OF CONTAMINATED AND ACTIVATED SCRAP.
B.4.3. NUCLIDE-SPECIFIC STUDY INTO ACTIVITY RELEASES DURING TWO SEQUENTIAL MELTING PROCESSES.
B.4.4. CASTING OF WASTE DISPOSAL PACKAGES CONTAINING HIGHER-LEVEL RADIOACTIVE (500 BQ/G) COMPONENTS EMBEDDED IN A MATRIX CAST OUT OF LOWER-LEVEL RADIOACTIVE SCRAP ("ONION PACKAGE").
B.4.5. MELTING OF SLAG AND SAWING CHIPS ARISING FROM DISMANTLING PROCESSES.
B.5. EVALUATION OF THE ABOVE MELTING PROCESSES ON THE BASIS OF

LABORATORY ANALYSES AND CONCLUSIVE ASSESSMENT OF THE POTENTIAL FOR LARGE-SCALE APPLICATION.

Fields of science (EuroSciVoc)

engineering and technology > other engineering and technologies > nuclear engineering > **nuclear waste management**

engineering and technology > environmental engineering > **waste management**

Programme(s)

FP1-DECOM 2C - Research programme (Euratom) concerning the decommissioning of nuclear installations, 1984-1988

Topic(s)

Data not available

Call for proposal

Data not available

Funding Scheme

CSC - Cost-sharing contracts

Coordinator

Kernkraftwerk RWE - Bayernwerk GmbH

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