

§6. Production of Database of Superconducting Magnet Systems for Fusion Devices

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1. The Four Phases of the Joint Work

A project of production of superconducting magnet database for fusion devices was initiated in FY1999 by the contributors all over the universities and research institutes in Japan. The major purpose of this project is to produce a database that will be essential and useful for the next design and construction of superconducting magnet systems for fusion devices in the near future. The activities under this project are composed as follows;

(i) The Planning Phase

Generate the list of technology elements essential for each of the major components of the fusion magnets, and develop work plan to organize useful database with schedule plan.

(ii) The Extraction Phase

Based on the experiences accumulated at National Institute for Fusion Science (NIFS), Research Institute for Applied Mechanics of the Kyushu University and Japan Atomic Energy Research Institute (JAERI), develop initial database associated with the selected technology elements

for each major components.

(iii) The Evaluation Phase

Carry out the evaluation of the initial database, from the viewpoints of accuracy, universal validity or the range of applicability, and usefulness for the design and construction of new superconducting magnets in the near future through participation by the project members from the Universities. In this Evaluation Phase, the technological experiences accumulated in universities participated in this project will also be compiled in the database as an integral part of it.

(iv) The Provisional Phase

All the database, gathered in the Extraction Phase and improved by the Evaluation Phase according to the work plan developed in the Planning Phase, will be compiled into the latest database of the superconducting magnet technology for fusion devices that will be installed at and be used through the internet servers located at the NIFS, Research Institute for Applied Physics of the Kyushu University and JAERI. The information to be loaded in the three servers shall be the same, updated in the same sequence and by the same revision of the database.

2. The Progress by March 2000

Four meeting of this joint work were held in FY1999 and the Planning Phase was almost completed. 14 components of the superconducting magnet systems were selected as the major ones and about 500 technology elements for the database were identified for the 14 components. The developed work plan will expect the intermediate review of the work in March 2001 and the final review in March 2002.