

DRAFT

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Status report EFF/EAF Projects  
- European Fusion and Activation File Projects -

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The EFF and EAF projects are joint projects of European laboratories, partly sponsored by the Fusion Technology Programme of the European Community (EC). Various European laboratories contribute on a voluntary base.

1. EFF-1

The EFF-1 data file is used by the NET-team at Garching and by European users. It does not only consist of a basic data file, but it has been distributed as a complete user-oriented package with neutron-photon coupled multigroup cross sections in VITAMIN-J structure, a consistent MCNP library, a multigroup response function library and a multigroup covariance library. Benchmarking indicates that this package gives rather good overall results for fusion reactor design calculations. The full file package is offered to be used by the ITER design team.

2. EFF-2

The EFF-2 basic data file has essentially been completed and preliminary benchmarking has been performed on shielding and neutron multiplication problems. It consists of materials of interest for fusion neutronics design calculations with special EC evaluations for Li-7, Be-9, Al, Si, the major isotopes of Fe, Cr and Ni, the Mo isotopes and natural Pb. Other materials have been taken from various evaluations with minor updates. The same complete package of derived data files is being made for EFF-2 as for EFF-1. The coupled neutron-photon multigroup library is almost ready, but some additional work is needed on the response library and the covariance

## 5. Cooperation with JEF, NEA-NSC

The intensive cooperation between the EFF and JEF projects may lead to merging the two files into a single "JEFF" data file. Proposals for this are being considered by the EFF and JEF parties at present. Further benefit of NEA projects is obtained by means of active participation in the Nuclear Science Committee and the Evaluation Coordination Working Party.

## 6. Orientation towards ITER needs

Recently the ITER team has expressed increased interest in nuclear data for design calculations and has requested additional data as compared to those resulting from the European NET programme. This naturally leads to a further orientation towards the ITER project. Thus, the EFF basic programme will be adjusted, e.g. by emphasizing low-activation materials, such as V, in the transport library and by addressing the status of coolant materials like He, Na and K. Also the work on the EAF data file and the corresponding inventory code will be further tuned to ITER needs. To this end the next meeting of the EFF-project in December 1993 will be organised at Garching to include further discussions with the ITER design team and a proposal for a long-range EFF/EAF programme will be made. The existing infrastructure of the European EFF/EAF projects, including capabilities for differential measurements, evaluation, processing, benchmark experiments, analysis and applications will be offered to reach the ITER and European requests for nuclear data and neutronics tools.

## 7. Cooperation with FENDL

The ITER preference for a "reference" file for fusion design calculations has led to the choice of IAEA's FENDL-1 selection of evaluated data as an initial data file. Europe has contributed to this IAEA activity, but has meanwhile developed other data files in the framework of the EFF and EAF projects. On the short range EC's data and neutronics infrastructure could be mobilized to contribute to processing and benchmarking of FENDL-1. Furthermore, the full EFF-1 package could be offered to ITER as a back-up solution as long as FENDL-1 derived data files are not ready for distribution. Likewise, the very complete EAF and FISPACT packages could be offered as complete and immediate solutions for a reference activation file. On a longer time schedule active participation in the FENDL-2 updating project from the side of the EFF and EAF projects is foreseen. To this end a combined EFF/FENDL meeting is proposed in Garching in early September 1994.

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