



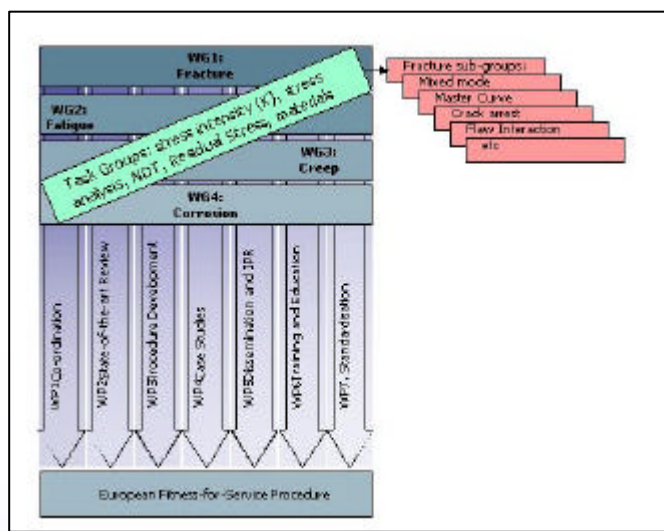
A mid-term newsletter from FITNET

March 2004

Established in 2002 to develop a consensus for a European fitness-for-service (FFS) procedure, the FITNET network is now mid-way through its four-year term. This is a good time to review achievements and look ahead to what is planned for the next two years, and beyond.

FITNET is organised via committees operating under the overall management of the Network Management Committee.

The Working Groups (WGs) cover a particular failure/damage mechanism (fracture, fatigue, creep and corrosion), while the Work Packages (WPs) cover a particular aspect of the network as a whole, such as training, case studies and procedure development. Committees include representatives of industry, universities and research institutes, who work together to agree on procedures that are both rigorous and practically applicable to a range of industries.



Working Group news

WG1: Fracture

Comprising over 40 members, this large WG is headed by Corus (GB). The group has a

wide range of expertise, including dynamic fracture, the use of the Master Curve and fracture under mixed mode. Small sub-groups have, therefore, been established on a variety of topics and members have assumed responsibility for supplying definitive statements for particular parts of the procedure.

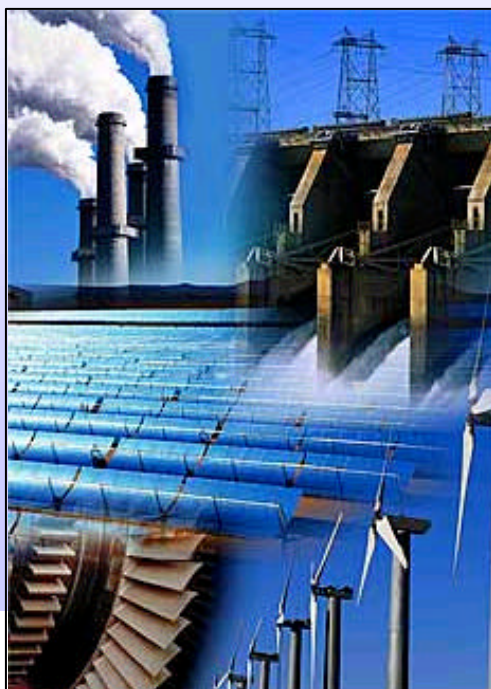
procedure and also contributed to the other work packages such as case studies and training.

WG3: Creep

Led by British Energy (GB), WG3 has made excellent progress on providing information to the various work packages, including procedure development, case studies and training.

WG4: Corrosion

This is a small working group under the leadership of Shell (The Netherlands). Its scope of work covers not only the assessment of failure by general and localised corrosion but also environment-sensitive fracture and corrosion fatigue.



WG2: Fatigue

Caterpillar in France leads WG2, which has more than 20 members. The group has successfully structured a FITNET fatigue assessment

Work Package news

WP1 Co-ordination

GKSS in Germany is responsible for the co-ordination of the network. To date, five full network meetings have taken place (in Germany, Britain, Italy, The Netherlands and Belgium), as well as informal interim meetings when needed.

Since the first FITNET brochure was issued in March 2002, several new members and self-funded participants have joined the consortium.

New members/participants:

Institut de Soudure (France)
[Skoda Vyzkum s.r.o](#) (Czech Republic)
Bureau Veritas (France)
[Deutsches Zentrum fuer Luft- und Raumfahrt. e.V.](#) (Germany)
National Physical Laboratory (GB)
CETIM (France)
[Pechiney CRV](#) (France)
Blendtech Ltd (GB)
IRSID/USINOR (France)
[EMPA](#) (Switzerland)
[Inasmet](#) (Spain)
[Schweißtechnische Zentralanstalt](#) (Austria)
[Amey Vectra Ltd](#) (GB)
EDF Electricite de France (France)
ICOM-ENAC-EPFL (Switzerland)
BISAFE (Czech Republic)
Hitachi (Japan)
Battelle (USA)

This brings the size of the network to some 50 organisations and 19 countries, including participation from several of the new EU countries (Poland, Slovenia, Hungary and the Czech Republic), from Switzerland and from outside Europe.

Another important role of WP1 is to ensure that the interfaces between WGs are addressed adequately. For example, at what temperature does a user need to consider creep as well as fracture in an assessment, and how should creep-fatigue interaction be treated?

WP2 State of the art review

This WP has now completed its work: a Europe-wide survey on the use of and need for FFS technology, and a plan for the structure of the future procedure and the activities of the network, based on the survey. The reports of WP2 (led by JRC in The Netherlands) are now available from the public area of the FITNET website.

WP3 Procedure Development

A structure for the procedure has been agreed, so that different working groups can work on the procedure simultaneously and achieve a harmonised style, layout and terminology.

WP4 Case studies and procedure implementation

VTT in Finland is leading this Work Package, based on input from several participants. A compilation of case studies of failure by fracture, fatigue, creep and corrosion is now essentially complete. These case studies will be used to test and validate certain aspects of the procedure, and to provide training material for WP6.

WP5 Dissemination and IPR

A network website has been running since the start of the project, both for the public dissemination of information relating to the network, and for the easy retrieval of committee documents and presentations. The website contains a public area with information in 14 European languages, links to related projects and FFS-related websites, information on FFS-related events (conferences, seminars, courses) and copies of consortium reports, as they become publicly available. There is also a password-protected participants' area containing contact details, a discussion forum, and working areas for each FITNET committee.

Other dissemination activities have been carried out by network participants, eg presentations about FITNET at conferences, and journal articles in several European languages. As the drafting of the procedure progresses, WP5 will also be increasingly involved in copyright and other IPR (intellectual property rights) issues.



WP6 Training and education

The first training seminar and workshop (organised by the University of Cantabria, UC) was held in Santander, Spain on 16-18 March 2004. This seminar, aimed mainly at graduate and undergraduate students in the local area, focuses on both the power and the shortcomings of existing FFS procedures (for example, BS7910, R6, SINTAP, API579), and looks ahead to the development of a European procedure. Similar training events are planned for other parts of Europe, under UC supervision.

The UC has also developed a comprehensive Training Package covering fracture, fatigue, creep and corrosion and Environmentally Assisted Cracking, available via the FITNET website.

WP7 Standardisation

CESI, leader of WP7, has opened negotiations with two standardisation bodies: CEN (representing European standardisation) and UNI (Italian standardisation). The eventual aim is to publish the output of FITNET as a CEN document, via a CEN Workshop leading to a CEN Workshop Agreement (CWA). This is a mechanism which allows for relatively rapid publication of an agreed procedure, but without it having the status of a CEN standard; a CWA is particularly appropriate for an FFS procedures, which can be seen as a framework for calculation, rather than a set of rigid rules. Moreover, publication through a CWA would not cause standstill on existing national procedures such as BS7910.

Task Groups

The consortium recognised that certain activities were not covered by a single WG or WP, but were relevant to all failure modes. Task Groups have therefore been established to cover these 'cross-group' interests as follows:

- **NDE (non-destructive examination); how do we detect and size flaws for an FFS assessment, and what can we say about the reliability/sizing capability of various techniques?**
- **Residual stress; how can we measure or estimate the influence of residual stresses (from welding, forming or fit-up) on fracture, creep and fatigue?**
- **Stress analysis; what techniques can be used and how are the results applied in an FFS assessment?**
- **Stress intensity (K-) solutions; do the solutions in existing procedures cover most users' needs? Are there any anomalies? Can we advise on the most appropriate solution in cases where several have been published?**
- **Materials; what are the material properties required for a FFS analysis and from where can the information be obtained? When the necessary information is unavailable for a specific material, how can realistic and conservative estimates of the property be determined?**

Next meeting

The next full network meeting will be held on
7-9 September 2004 in Paris.

For further information, see the network website:

www.eurofitnet.org

The author is solely responsible for this information. It does not represent the opinion of the Community, and the Community is not responsible for any use that might be made of data appearing herein.