Lecture 17

New Trends in Standards and Software

1. Many fracture mechanics analysis projects end with the development of a software package to do application modeling

2. Other ones develop procedures that are written down and can be applied as a "cookbook" type approach where the used does not have to be an expert in fracture and fatigue

- Software packages and cookbook approaches are best used to help with calculations after a basic knowledge of the material is gained.
- Using these without some understanding could lead to errors

European Application Methodologies

1. FITNET - FITNET is a 4-year European thematic network with the objective of developing and extending the use of fitness-for-service procedures throughout Europe. (www.euro**fitnet**.org/)
2. SINTAP – **S**tructural **INT**egrity **A**ssessment **P**rocedures for European Industry (www.eurofitnet.org/**sintap**_index.html

Other FM Software

- AFGROW - The official home page of the AFGROW Fracture Mechanics program. This site contains all of the information one needs to use AFGROW effectively.

- NASGROW - Analyze fatigue crack growth and fracture, Perform assessments of structural life, Process and store fatigue crack growth properties, Analyze fatigue crack formation(initiation), and Compute stresses. Airframe Guide for Certification of Part 23 Airplanes.

- CRACKS2000 - CRACKS2000 is a state-of-the-art crack growth analysis software system based on linear elastic fracture mechanics technology.

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NASGRO

- Fracture Mechanics and Fatigue Crack Growth Analysis Software

- analyze fatigue crack growth and fracture

- Perform assessments of structural life

- Process and store fatigue crack growth properties

- Analyze fatigue crack formation (initiation)

NASGRO

- NASGRO was originally developed at the NASA Johnson Space Center to perform fracture control analysis on NASA space systems. A growing interest in NASGRO among a variety of industrial users motivated NASA to develop a new partnership with industry. In July of 2000, NASA and Southwest Research Institute® (SwRI®) signed a Space Act Agreement under which SwRI formed and manages a consortium to provide guidance and support for future NASGRO development and user services. The NASGRO Consortium is now in its third three-year cycle (2007-2010).

API 579-1/ASME FFS-1

- Fitness for Service Standard for pressure containing equipment in the refining and petrochemical industries

- API standard first issued in 2000

- Influenced by BSI 7910?

- Designed to be cookbook in nature?

API 579-1/ASME FFS-1

- **API RP 579-1 / ASME FFS-1,** *Fitness-For-Service, Second Edition,* is a recommended practice developed and published by the **American Petroleum Institute (API)** that describes several standardized **fitness-for-service** (FFS) assessment techniques for pressurized equipment used in the oil & gas, petrochemical, and chemical

This Procedure can be purchased

- Second Edition, June 5, 2007Pages: 1,126Hard Copy only:
- Price: $650.00 / Product Number: C57902
- CD only:
- Price: $775.00 / Product Number:C5792CD
- Hard Copy and CD:
- Price: $1100.00 / Product Number: C5792EE