

# **Minutes of EFC WP 15**

## **Corrosion in the Refinery Industry**

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## 1 Welcome

The meeting was opened by Francois Ropital (chairman of EFC WP15 party), who welcomed the participants. 24 persons attended the meeting and shortly introduced themselves. Apologies was received from 20 persons. The lists of the participants and the excused persons are enclosed in Appendix 1.

## 2 EFC WP 15 Activities

### 2.1 EFC WP 15 Activities and Minutes of Meetings

Information on the activities of EFC WP 15, Corrosion in the Refinery Industry were presented by Francois Ropital (Appendix 2). This information can also be found on the EFC web-site ([http://www.efcweb.org/WP\\_on\\_Corrosion\\_in\\_the\\_Refinery\\_Industry.html](http://www.efcweb.org/WP_on_Corrosion_in_the_Refinery_Industry.html)) where the minutes of previous WP15 meetings minutes can be consulted and downloaded.

### 2.2 Publications

Two EFC WP 15 publications that should have been available last year, were slightly delayed.

- EFC Guideline no. 40: Prevention of Corrosion by Cooling Waters. This guideline will be available by October 2004 (Maney Editor). Information is available on the web site:  
<http://www.maney.co.uk/search?fwaction=show&fwid=623>
- EFC Guideline no. 42: A Collection of Selected Papers (ed. John Harston).
- The "Amine Unit Corrosion Survey" managed by John Harston will also be published. As it was proposed during the meeting, John Harston agrees to prepare an introduction to this document

Publications in preparation:

- Corrosion under insulation issues in modern refinery and petrochemical plants. This new guideline has been discussed during the meeting on CUI. The discussions on this guideline are presented in section 4 of these minutes.

- Collection of selected papers of the joined WP3/WP15 workshop. "*Corrosion by hot gases and combustion products with emphasis on high temperature corrosion in the chemical and petrochemical industries,*" has been held with WP3 during Eurocorr 2004. Depending upon the number of papers, a separate printed volume of the EFC series may be published. Prof. Schutze (chairman of WP3 "High Temperature Corrosion). Updated copies of papers presented during this workshop should be forwarded to prof. Schutze as soon as possible in order to send them to the editor by February 2005.

### 2.3 Data base of literature on refinery corrosion

The literature database created by Hennie de Bruyn (Statoil) which also include the data collected by Eni (NACE Italia) on naphthenic acid corrosion has been distributed with the minutes of the last meeting. This data base is also been available on the updated web site of EFC so that users can download it

([http://www.efcweb.org/WP\\_on\\_Corrosion\\_in\\_the\\_Refinery\\_Industry.html](http://www.efcweb.org/WP_on_Corrosion_in_the_Refinery_Industry.html)).

Additional information on this data base are included in Appendix 2.

### 2.4 EUROCORR 2005

Eurocorr 2005 (EFC event n° 273) "Corrosion control for sustainable development" will take place in Lisbon, Portugal from 4-8 September 2005. Its web site is <http://www.eurocorr2005.org>

The working party agreed to continue the discussion with WP1 (inhibitor) and WP13 (oil & gas production) for a joint workshop on corrosion inhibitors.

A special topic for this joint workshop will be "Naphthenic acid corrosion inhibitors."

The refinery session will focus on CUI failure cases.

As 2005 will the 50<sup>th</sup> Anniversary of the European Federation of Corrosion, a key note lecture will be given on "50 years of corrosion work in the refinery industry".

The deadline for papers (oral or poster) contribution has been postponed from 15 November 2004 to **17 January 2005**.

[http://www.eurocorr2005.org/?page=abstract\\_submission](http://www.eurocorr2005.org/?page=abstract_submission)

### 2.5 Other corrosion conferences

EFC-Workshop "Novel Approaches to the Improvement of High Temperature Corrosion Resistance" (EFC event n°275). October 27 – 29, 2004 , DECHEMA House ,Frankfurt am Main (Germany).

More information can be obtained on the web site <http://www.dechema.de/efcws04>

NACE Italia Corrosion Conference 25-26 November 2004 Porto Antico (Italy)

### **3 Presentations on corrosion monitoring**

#### **3.1 Achieving Improved Process Control and Real-time Corrosion Monitoring by R. Kane (InterCorr Int.)**

Russell Kane presented InterCorr's approach to deal with real time corrosion monitoring. A presentation of some monitoring technologies allowing real-time response was given and illustrated with examples where online technology is implemented with integration and correlation with process variables. More information is provided in Appendix 3.

#### **3.2 "Continuous Active Corrosion and HIC risk Measurement" by F. Dean - Ion Science Limited**

Frank Dean presented Hydrosteel 7000 fixed installation for mapping hydrogen flux in highly corrosive critical areas. More information is provided in Appendix 4.

### **4 Corrosion Under Insulation EFC Guideline**

#### **4.1 General discussion on a European guideline on CUI**

A special meeting has been held on 14 September 2004 in Nice with EFC WP 13 (Oil and Gas Production) and the UK forum on CUI (which was represented by John Thirkettle). The activities of the 3 groups have been presented. It has been concluded that CUI is a major corrosion topic for upstream and downstream activities : when achieved, the guideline that WP15 is producing, could be extended to other industries (can be applied on all insulated equipment). EFC WP13 and the UK CUI Forum will be kept updated on progress with the WP15 guideline.

#### **4.2 Presentation by their authors and first discussions on their contents**

The following sections have been submitted for the document. Authors present at the meeting presented highlights from their sections for the discussion. Details from these discussions are not included in the minutes but will be reflected in an updated document. Sections discussed (version 1) are indicated below:

**Section I: Preface - Scope - Introduction** (Francois Ropital, IFP)

**Section II: Cost analysis** (Andrew Kettle, Chevron-Texaco). Andrew was not present at the meeting. This section was not discussed.

**Section III: Ownership and responsibility**: (Staffan Olsson, Scanraff)

**Section IV: Unit prioritization** (Andrew Kettle, Chevron-Texaco) . Andrew was not present at the meeting. This section was not discussed.

**Section V: Reality check** (Nicholas Dowling, Shell)

**Section VI: Risk analysis** (Ray Owens, Total; Maarten Lorenz, Shell; ENI/AGIP)

**Section VII: Challenge** (Hennie de Bryn, Statoil; Stefan Winnik, Exxon-Mobil)

**Section VIII: Evaluation plan** (Ray Owens, Total)

**Section IX: NDT screening techniques** (C. Aiello, ENI)

**Section X: Implementation** (Steffen Winnik, Exxon-Mobil)

**Section XI: Feedback of findings into main implementation plan** (Charles Droz, Exxon-Mobil; Maarten Lorenz, Shell)

**Appendix (i):** NDT technique listing (C. Aiello ENI)

**Appendix (ii):** Monitoring techniques (Maarten Lorenz, Shell)

**Appendix (iii):** Application of new insulation and refurbishment issues (Stefan Winnik, Exxon-Mobil).

**Appendix (iv):** Design (Terry Hallett, Shell). This is a new appendix in the guideline based on the need to include guidelines on avoiding CUI during the design stage.

#### **4.3 Reviewing and modification of the draft guideline**

The following plan of action has been agreed upon:

1) Revision of the different sections of the CUI Guideline that have been distributed for the Nice meeting (version 1 of the CUI guideline).

Comments should be forwarded to each section's author who will taken responsibility to incorporate changes where necessary.

2) To facilitate the transmission and consultations of files, a common internet zone has been created:

<http://project.ifp.fr/cui-efc-wp15>

This will facilitate easy sharing of the documents and provide access to the most updated versions.

3) Progress schedule for the guideline:

15 December 2004: Modification of the sections according to the comments send by individual members of the group, creating version 2.

5 January 2005: Distribution, availability on web common zone, of version 2 of the CUI Guideline - second review by the group.

17-18 March 2005: WP15 meeting in Trondheim (Norway) - Modification of version 2 - contact and selection of an editor to merge all the sections in a "common style" document.

The target date for publication is planned for September 2005.

## **5 Next Meetings**

*The next spring meeting will take place in Trondheim (Norway) on Thursday and Friday 17-18 March 2005. It will be hosted by Statoil .*

This meeting is initially planned on 2 days: one day meeting will be fully dedicated to the Corrosion Under Insulation with the review and discussion on the draft EFC guideline and the other day to other general topics.

### 2005 Autumn Full WP Meeting:

This meeting will take place in Lisbon during the Eurocorr 2005 conference, 4-8 September. Our colleagues from Portugal and Spain are specially welcomed: please transmit the invitation to your corporate colleagues dealing with refinery corrosion in these countries.