

## Meeting minutes for COMRADE workshop 21st – 22nd of September 2016

(3 appendix)

The workshop was divided into 2 sections

- September 21<sup>st</sup> Education with Dr Sue Burnay
- September 22<sup>nd</sup> Results from CORMADE Project and discussion

### September 21<sup>st</sup> Education

Dr Sue Burnay presented three overall topics during the day

- Why ageing is a concern
- Ageing assessment
- Lifetime prediction methods

The lecture went on from 9 am to 5 pm and included several questions and insights to be used in the COMRADE project also. All slides are included in appendix 2

### September 22<sup>nd</sup> COMRADE

The day was divided into 3 parts

- Presentation of the results from WP1, WP2 and WP3.
- Discussion on the application process and changes to be done for next year
- Tour of SP

**Presentation of the results from WP1, WP2 and WP3.** See slides in appendix 3 for more information on what was presented.

**Discussion for the application.** During the discussion a recapture of the WP was initiating the discussion. For the WPs the following questions was brought up

#### WP1:

How are we dealing with air consumption during radiation? The chamber is filled with air from the beginning but the chamber is tight so a consumption will occur. This is however believed to be the most similar to the reality where air availability is limited.

Why are we not aging in water? Since we were told by the plant that it is no water in the actual pipe we chose not to use water in the test.

What size cord to use? We will use a larger size cord for the o-ring in the upcoming tests since experience brought up by Dr Burnay 6-8 mm is a preferred thickness.

Overall comments: Hardness, dimensions and weight to be included in the test on each piece. Try and run to 150 bar. Try test block without o-ring. Good to run rad – heat order if not able to run simultaneously.

## WP2:

A wish list needs to be compiled for Barsebäck and to see how that correlates to the possibilities at Barsebäck. A contact should be made to the Elkraftgruppen and to the TBY gruppen (paints and coatings). If there is a need to acquire components from running plants we need to let them know in time for outages. Plants at OKG are shutting down to which could be of interest and to avoid the risk of “what has happened to the material after shut down”. Interesting to look at local hot spots in running plants. It is important to have sufficient documentation on the investigated materials, environment during use, type of material etc.

## WP3:

This is a more academic work package aiming at understanding the surface and bulk degradation caused by radiation and thermo-oxidative ageing and the combination of both. An advice from Dr Sue Burnay was to study the micro structure of the materials, which is important information and input for modelling. Also consider the reverse temperature effect.

Task 3.1: It was concluded that, despite all the progress in the field of multiscale materials modelling, there remains a considerable gap between the present mechanistic modelling capabilities and practical lifetime prediction. Bridging this gap is clearly beyond the resources available in the Comrade project. Instead, it was proposed that the modelling efforts should be focused on a particular synergistic mechanism. Dr. Burnay suggested the “reverse temperature effect” (manifested in various semicrystalline polymers) as an interesting candidate.

**The Tour.** During the tour 18 people was given the opportunity to review 3 different areas at SP. SP Fire Safety, SP Electronics and SP Chemistry, Materials and Surface department.

Best regards

**SP Sveriges Tekniska Forskningsinstitut**  
**SP Kemi, Material och Ytor - Polymer och Fiber**

Marcus Granlund

## Appendix

Participants

Slides from education September 21<sup>st</sup>.

Slides from result presentation and discussion COMRADE project September 22<sup>nd</sup>.

## Bilaga 1

### Participants

Ritva	Korhonen	Fortum
Antti	Paaanen	VTT Technical Research Centre of Finland Ltd.
Konsta	Sipilä	VTT Technical Research Centre of Finland Ltd.
Sami	Penttilä	VTT Technical Research Centre of Finland Ltd.
Anja	Kömmeling	Federal Institute for Materials Research and Testing (BAM) Berlin
Marcus	Granlund	SP Sveriges Tekniska Forskningsinstitut
Anna	Jansson	SP Sveriges Tekniska Forskningsinstitut
Anna	Bondesson	SP Sveriges Tekniska Forskningsinstitut
Tomas	Nälsén	Habia Cable AB
Henrik	Widestrand	Vattenfall AB
Annelie	Jansson	Forsmarks Kraftgrupp AB
Jan Henrik	Sällström	SP Sveriges Tekniska Forskningsinstitut
Johan	Sandström	SP Sveriges Tekniska Forskningsinstitut
Anders	Höije	SP Sveriges Tekniska Forskningsinstitut
Stjepan	Jagunic	Ringhals AB
Emil	Boström	Vattenfall Teknik
Christina	Lillfors Pintér	Vattenfall AB
Ana Belen	Perez Cerdan	Ringhals AB
Tamara	Sarac	SCK-CEN, Mol
Ulrika	Bäckström	Ringhals AB
Chris	Pickford	Sellafield Ltd
Sven	Karlsson	Vattenfall Ringhals AB
Bengt-Erik	Svensson	Vattenfall Ringhals AB
Alexander	Landstedt	Vattenfall Ringhals AB
Jukka	Sovijärvi	STUK
Dina	Solatie	STUK
Monika	Adsten	Energiforsk
Sue	Burnay	John Knott Associates Ltd
Maria	Hövling	Nuvia Nordic AB
Alberto	Vega	SP Sveriges Tekniska Forskningsinstitut
Nazdaneh	Yarahmadi	SP Sveriges Tekniska Forskningsinstitut
Maria	Eklund	Westinghouse Electric Sweden



## Meeting minutes

Datum

2016-09-27

Beteckning

Sida

1 (1)

Bilaga 2

**Slides from education September 21<sup>st</sup>**



## Meeting minutes

Datum

2016-09-27

Beteckning

Sida

1 (1)

Bilaga 3

**Slides from result presentation and discussion COMRADE project September 22<sup>nd</sup>.**