Cover letter for documents 241 & 242

Hi, Clive

Attached please find two documents obtained from Prof. Xidong Liang of Tsinghua University in China regarding the operational experience of composite insulators. All the three authors of these two documents are well known experts in China and represent the view of both research institute and utilities. The operational experience presented is of significant and positive.

My reaction and thoughts are:

1. It seems there are two low limitations for the creepage distance, after all other parameters such as profile and diameters. One is the limitation for pollution flashover, the other is the limitation for aging. the first limitation is, naturally, decided by the site pollution severity and the insulator parameters. The second limitation has a relation with site conditions but also strongly related to surface stress level.

2. The reasons of using composite insulator are different. In many cases pollution flashover is not the issue in concern and the required creepage distance is not the dimensioning parameter. In these cases the necessary value of USCD is often low even for insulators of a hydrophilic surface. As a consequence, the surface stress may become higher.

3. For the areas where pollution flashover is the dominating dimensioning parameter, a higher value of USCD will be required which resulting in a lower surface stress level. In these cases the difficulty encountered by a design engineers is that the insulators become too long.

4. Composite insulators with surface material of hydrophobicity transferring ability has been proven to give better pollution performance both in laboratory test and in service. This is specially the case in the areas where type A pollution is dominate. The accumulation process of type A pollution allows more time for the HTM to recover.

5. The experience from US and from China shown that when pollution, mostly type A pollution, is the dominating dimensioning parameter, even with a shorter creepage distance than that of porcelain, the use of composite insulators with HTM has given satisfactory pollution performance, and at the same time, without leading to a high statistic of aging related failures.

Therefore, I would proposal the text in Part III like, e.g.:

For areas dominated by type A pollution and where the pollution is the dimensioning parameter for the insulator design, a shorter creepage distance may be used on insulators with a HTM surface than that used on insulators of a hydrophilic surface, e.g. porcelain insulators. However such a design principle shall only be accepted after a successful trials

Best regards,
Dong