Evaluating the AC corrosion risk of cathodically protected pipelines

-A first experience with a new approach according to German standard GW28-

Ashokanand Vimalanandan*, Markus Büchler+ and Hanns-Georg Schöneich*

* Open Grid Europe GmbH, Gladbecker Str. 404, 45326 Essen, Germany

+ Swiss Society for Corrosion Protection (SGK), Technoparkstr. 1, CH-8005 Zürich, Switzerland

The evaluation criteria mentioned in ISO 18086 and GW 28 (AC current density, DC current density, on-potential, AC Voltage and soil resistivity) are the cornerstone in assessing the AC (alternating current) corrosion risk of cathodically protected pipelines.

Within the framework of a research project, data from pipeline operators and from laboratory measurements were collected and thoroughly analyzed, which led to the addition of a geometrical parameter as a further suitable criterion in combination with the AC current density, DC current density, on-potential, AC-voltage and soil resisitivity (GW 28-B1). An important key conclusion from this study is, that at certain circumstances AC corrosion cannot be mitigated and that along with time the very high corrosion rate will ultimately decrease to a technically negligible value.

Here we report the basic idea of the new concept and the first experience in applying these new criteria for evaluating the AC corrosion risk of a pipeline.