**Subject: Water Chemistry Optimization in Secondary Circuit of BNPP**

Current water chemistry regime in BNPP is based on AVT(hydrazine ammonia) method. According to the effect of FAC mechanism on secondary side material especially in SG, as well as the modification of the WWER secondary side water chemistry regime in the world, BNPP has decided to improve current regime of secondary circuit to amine based regime by increasing pH value from 9.2 up to 10 in order to decrease the FAC damage in the 2nd side and SG materials.

In order to mitigate ammoniated corrosion of copper alloys, pH 25 in feed water has to be limited to 9.2 to 9.3 to avoid the formation of soluble copper-ammonia complex. A pH of 9.2 with ammonia is not acceptable to keep Carbone steel corrosion at a significantly low level. Thus, an amine has to be used in this case to increasing the pH value.

In BNPP main condenser, some component such as tube sheets and support plate of tube bundles is made of Copper alloy (Aluminum-Bronze) and increasing in pH value up to 10 maybe increasing in Copper alloy corrosion. This complicated subject does not allow us to increase pH value.

Due to the large scale of these plates, their material (which is of copper alloys), and also Titanium tubes in condensers, changing the material of these plates seems impossible. In addition, it has great expenses. All of the abovementioned causes lead to many complications in increasing pH value and changes in water chemistry regimes.

Considering UJV’s experience in changing water chemistry regime of the secondary circuit in various NPPs, we would like to know your suggestions on changing water chemistry regime of the secondary circuit in BNPP from Hydrazine-Ammonium to chemistry regime by adding some combination of Amin and your strategies in this regard.