Installation of high resistance grounding system on the ungrounded system at offshore platform

ABSTRACT

Single line to earth fault usually can be seen in the ungrounded system. The ungrounded system is used widely in offshore platforms due to its advantages over the overvoltage whenever a fault occurs in the power systems. Continuous production with less interruption is vital in the oil and gas industry to achieve the production rate target. The grounding system has evolved for the past years and improvements have been made to the ungrounded system that has been around the years in the industry. The ungrounded system has been the best grounding system when the power system needs to maintain its operation with the presence of tolerable fault such as the single line to earth fault. Some facilities have included the feature of tripping the main circuit breaker whenever there is ground fault on the non-critical equipment. This has been unproductive to the operation and time consuming in restarting the plant facility after power failure or shutdown. Kikeh offshore platform is having the same situation whenever the ground fault occurs the main circuit breaker tripped and affects the operation badly. The High Resistance Grounding (HRG) design has proved to be able to sustain the fault and at the same time allows the plant to continue operating without any unnecessary shutdown. This improves the downtime and increases productivity. Furthermore, arc hazards to personnel and the classification flammable gas area can be minimized.