

**Note on the visit of the ADG & HOD, GSI, WR in Bokri north area, Jhunjhunu district,
Rajasthan**

Shri Brij Kumar, ADG & HOD, GSI, WR made a visit in Bokri north area, Jhunjhunu district, Rajasthan to inspect the performance of the modified drilling rig on 24.6.19. He was accompanied by Shri K. C. Sahoo, DDG & RMH-II, Dr. Shubhabrata Mukhopadhyay, Director (G), Shri Praveen Prabhat, Superintending Engineer. On arrival of the ADG & HOD, WR, at drilling site of unit no.426, Shri Praveen Prabhat, explained the mechanism behind the successful installation of the flexible Tyre coupling(F90) in drilling machine. This modification has improved the output of the drilling performance in drilling unit no.426, GSI, WR.

He also appraised to the ADG, that at present drilling operation in conventional machine RD-60, RD-100, VOL-300 etc. is functioning normally in second gear of main gear, in rare case third gear is being given. With these gear ratios the maximum spindle speed obtained is in the range of 200 to 350 rpm which is very disadvantageous as the optimum spindle speed required for IMP bits should be 500 to 600 rpm. Drilling in third or fourth gear was never possible due to very high vibration. To overcome this high vibration some modification was made in drilling Unit no. 426 deployed in Bokri North by replacing the rigid coupling by a flexible Tyre coupling(F90) on 06.06.2019 .

After replacing the coupling, it is observed that vibration of machine drastically reduced and drilling is possible in fourth as well as in fifth gear allowing the spindle to rotate at about 900 rpm. This increases the feed rate significantly and run of 3m with HWT core barrel at borehole depth of about 140 m is completed in just one hour which was earlier taking Two and half hours. With this high penetration rate even in fractured Zone 3m run is possible without any blocking tendency. Earlier with low penetration rate, uneven formation has a tendency to block drilling fluid flow causing stoppage of drilling without completing 3 metre run. It is observed that the flexible tyre coupling is very useful in absorbing Jerks, vibrations coming from both side i.e. from formation as well as engine side. It is pertinent to note that spindle speed in hydrostatic rigs are around 800 to 900 rpm but that is obtained with 150 HP engine whereas in present case same spindle speed is being obtained with 50 HP engine.

Shri Brij Kumar, ADG & HOD, GSI, WR and Shri K. C. Sahoo, DDG & RMH-II were satisfied with the new modification adopted by the drilling division and advised Shri Praveen Prabhat, SE, to modify the other drilling machines in the same pattern to increase the drilling performance.

The ADG also examined the drill cores at drilling site of units no. 423 and 426. He held discussion with Shri K. C. Sahoo, DDG & RMH-II, Dr. Shubhabrata Mukhopadhyay, Director (G) and Shri Rohan Das, Sr. Geologist, regarding further planning of boreholes in the area. Shri Rohan Das, explained in detail about the planning of the boreholes and expected depth of intersection of mineralised zones. Shri Das, also explained mineralisation intersected in earlier boreholes with the help of BH sections. Most of the boreholes drilled so far, intersected copper mineralisation of varying width, mainly in the form of veins, stringers and dissemination of chalcopyrite. Cu mineralisation is mainly hosted in fault breccia.



Originally Fitted Coupling in the drilling rig



Present Modified Coupling in the drilling rig



Shri Brij Kumar, ADG & HOD, GSI, WR inspecting the drilling rig with Modified Coupling



Dr. S. Mukhopadhyay, Director, explained about the mineralisation of Bokri north area to Shri Brij Kumar, ADG & HOD, GSI, WR



Shri Rohan Das , Sr. Geologist, explained in detail about the planning of the boreholes to Shri Brij Kumar, ADG & HOD and Shri K. C. Sahoo, DDG & RMH-II, GSI, WR