

**Project title:** Advice for strata monitoring instrumentation and preparation of instrumentation plan for K2 panel of R-V seam at Khottadih Colliery, ECL

**Project No.:** CNP/4866/2019-20

**Executive Summary:** The thickness of the R-V seam of Khottadih Colliery, Eastern Coalfields Limited (ECL) varies from 2.93m to 3.07m with a maximum depth of cover of 130m. The RMR of R-V seam is 53.1. The seam was developed by the drilling and blasting method with a average pillar size of 30m x 30m (centre to centre). The height and the width of the gallery vary from 2.1m to 2.6m and 4.0m to 4.4m respectively. The developed pillars of K2 panel in R-V seam are to be depillared by drilling and blasting method. The K2 panel is divided into two subpanels i.e. K2A and K2B.

The mine management requested Director, CSIR-CIMFR, Dhanbad for a scientific study for strata monitoring instrumentation and preparation of instrumentation plan for K2 panel of R-V seam at Khottadih Colliery, ECL.

The strata monitoring is proposed to be carried out by installing Stress Cells, Rotary Tell-Tales (RTT), Auto Warning Tell-Tales (AWTT) and Remote Convergence Indicators (RCI). The Stress Cells are proposed to be installed at two pillars in each subpanel at the locations of 64L/4WD and 64L/3WD of K2A panel and 64L/1D and 64L/2D of K2B panel. The RTTs are proposed to be installed at the middle of the split galleries with an anchored height of at least 5m. The AWTTs are proposed to be installed at all 3-way junctions (split junctions) and all original 4-way junctions for each pillar. The anchorage length of AWTTs is at least 10m from the roof level with a trigger level of 5mm. Two RCIs in each subpanel are proposed to be installed at the pillar located at 64L/4WD and 64L/3WD of K2A subpanel and 64L/1D and 64L/2D of K2B subpanel by making grooves in the pillars. The formats for recording the readings of the instruments are given in the Annexure I to Annexure IV. The action plans with respect to the readings of the instruments are provided in Annexure V.