entire length, except for the lower 25-35 m, which are cased with perforated pipes or not cased (with solid rocks).

Vertical-deviated directional wells are drilled to undermined seams (rock layers) and subsequently from one blast-hole along the developed massif (coal seams or parting rocks), the inclined-horizontal part of two to four degassing wells is drilled, thereby increasing the contact area of gas producing seams within the floor. This version of such method of degassing, in addition to increasing the rate of natural gas suitable for utilization, allows more deeply degassing the overlying seams of the measure, including more reliably preventing the possibility of sudden gas emissions into the mine workings.

In the descending order of mining methane-producing coal seams of the measure, VDDW should be drilled in such a way that the inclined (horizontal) part of the well passes through the produced seam in the active overworking zone or by bedding between the developed and degassed seams.

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REDUCTION OF ORE LOSSES AND DILUTION IN MINING CONTIGUOUS ORE BODIES

The problem of improving quality and quantity indices of mining Kryvyi Rih iron ores has been an urgent problem, especially in conditions of escalating competitive struggle of countries exporting iron ore materials to the European market. China, Australia, Brazil, India

and Russia are major competitors of Ukraine in this regard. There are several reasons for that. First of all, it is the mining depth of over 1500 m, great rock pressure and relatively low iron content in the mined ore. Ukraine produces sintering ore of 58-60% Fe, while its competitors - 60-63% Fe. Therefore, search for new mining technologies considering geological conditions of Kryvyi Rih iron ore basin is of primary importance as it is aimed at improving quality indices of the ore mined.

Kryvyi Rih iron ore basin comprises more than 300 column and plate-forming deposits with the depth reaching 3000 m. The iron content varies from 58% to 64%.

The structure of occurrence of ore bodies is formed by contiguous ore bodies and rock interlayers.

Considering the necessity of mining contiguous ore bodies, the authors suggest the technology of steep deposit mining of contiguous ore bodies, which is characterized by maximum application of mining and geological characteristics of an ore deposit and separate technological factors to gaining ultimate ore recovery.

The technology implies disintegration of an ore body into columns with the height equaling in vertical thickness of ore bodies and the rock interlayer. The ore massif is drilled within a column considering cutting of the rock interlayer without destroying it and cutting a rock pillar in the hanging wall of the vertical column. Some of the boreholes located under upper and lower rock interlayers are left uncharged to control movement of rock interlayers in ore drawing.

To avoid early dilution, the ore is drawn from craters away from the rock. This time table of ore drawing allows irregular movement of the lower rock interlayer and its dumping onto the given angle exceeding that of the natural slope of broken ore. The upper rock interlayer in ore drawing is based on the upper ore pillar and becomes horizontal. The volume of the ore drawn determines the moment when the upper rock interlayer becomes horizontal. After that, the previously drilled boreholes are charged and the upper ore pillar is destroyed, this providing regular horizontal sinking of the interlayer where ore and rocks interact avoiding dilution caused by overlying rocks. After the lower rock interlayer takes a certain position and reaches drawing craters, the lower ore pillar is de-

stroyed and the ore is drawn to obtain substandard ore. The described algorithm enable the maximum ore recovery with insignificant dilution.

Conducted laboratory experiments of the technology confirm possible control over upper and lower rock interlayers in ore drawing. Comparative calculations of the suggested technology and the one without upper rock overlapping and leaving the lower pillar reveal reduction of ore losses by 3.8 times, dilution by 5.8% and increase of ore recovery ratio by 9%.

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CHOICE OF AN INDEPENDENT ROCK BOLT SUPPORT FOR CROSS-CUT FACE

An independent rock bolt support has been known in Polish mining since 1917, but it began to develop after World War II. The rock bolt support is an alternative to the arch yielding support, which dominatess in Polish hard coal mining. Using this type of support to secure roadways compared to an arch yielding support is primarily: a larger