Concept of repairing branch pipes on high-pressure pipelines by using split sleeve

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Repairs of branch connections defects on high-pressure pipelines allied to gas-escape are nowadays difficult processes. The reason is necessity of performing sections of damaged pipeline that is connected with transport medium layoff or with using technology of by-pass installing around damaged part of pipeline. In article, a concept of technology of branch connections repairing by split pressure sleeve is presented, which is in recent times realised only at straight sections of pipelines. Concept consist of split sleeve design along with wall thickness optimization in simulation software ANSYS. Concept of internal space of sleeve sealing up from welding workspace using appropriate seals placed at its sealant carriers is presented, too. Dimensions, material of carriers and sealant location were designed according to experimental measure of temperature, together with subsequent validation of heat transfer by numerical simulation in software SYSWELD. Described repairing method concept seems to be an appropriate alternative of branch connection repairing that allows fast and safe correction with lowered operational costs on realisation of repair and possibility of speeding-up and simplifying emergency conditions solution.

Keywords: gas-escape repair, pressure sleeve, high-pressure gas pipelines, SYSWELD, ANSYS

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