STUDY OF ACCURACY OF REFERENCE NETWORKS FOR GEODESIC MONITORING OF LARGE-SIZE INDUSTRIAL MACHINERY

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The purpose of the work is to study the accuracy of the reference networks for geodetic monitoring of large industrial machinery. The analysis of the accuracy of reference networks is based on the CREDO technology. Mathematical processing of the reference network created at the production facility showed that the shape and orientation of the mean square error ellipses in some cases is not beneficial to determining the coordinates of the stations from which measurements of the geometric elements of the aggregate are performed. When constructing the reference network for performing geodetic monitoring of industrial machinery, the approximation of the mean square ellipse to the circle of errors matters most when the accuracy of the position of the point acquires the same values in all directions. At the design stage or final leveling the considered method of mathematical processing of the reference network allows obtaining optimal results in the exact coordinates of the points to be determined by analyzing and choosing the optimal solution. This, in turn, will improve the accuracy of the determining geometrical parameters of large-scale industrial machinery during geodetic monitoring.

Key words: geodesic monitoring, accuracy assessment, reference network points, mean square errors, orientation of error ellipses, CREDO technology, balance of weights of angular and linear measurements.

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