«Measures to improve the performance of concrete of reinforced concrete supports of technological overpasses»

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• The purpose of the work is to assess the technical condition of reinforced concrete supports of existing technological overpasses of an industrial enterprise for further reliable operation, taking into account their bearing capacity with new technological pipelines.

• The paper presents the process of assessing the technical condition of reinforced concrete supports of existing technological overpasses, gives their characteristics, shows the defects found in the process of assessing the technical condition.
The article describes the monitoring of concrete strength by the non-destructive method of elastic rebound using the Digi Shmidt 2000 device and the determination of the thickness of the concrete cover and the location of reinforcement by the magnetic method using the Profometer-5S device. We determined the layout of the working reinforcement in the reinforced concrete supports of the overpasses’ sections. We present the results of verification calculations of the structures of the technological overpasses, taking into account the revealed defects and damages, the strength of materials and the specified actual loads. We give recommendations for improving the performance of the concrete of the reinforced concrete supports of the overpasses.
Conclusions

Results, implementation

- Based on the results of the verification calculations, we found that the elements of the girders of the span structures do not have a deficit in the bearing capacity in the first group of limiting states. Calculation of the supports of the technological overpasses in all sections did not reveal any deficiencies in the bearing capacity.

- The results of the reliability calculation showed that it is necessary to carry out an overhaul of the building structures of the overpasses in the shortest possible time.

- Dispersed reinforcement can be recommended to improve the performance of the concrete of the reinforced concrete supports of the overpasses.

- Taking into account the unfavourable factors that are present during the operation of the overpass supports (high humidity, high temperature, vibration loads, the aggressiveness of the working environment), the use of dispersed reinforcement will make it possible to more effectively resist these factors.
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