EDITORIAL

Responsibility, Authority, and Accountability

By W. Randy Cox, ASBI; Theodore Neff, PTI, and William N. Nickas, PCI

More than 15 years ago, the concrete bridge industry in the United States became aware of several isolated performance issues related to grouted post-tensioning (PT) tendons. In response, several responsible stakeholders—owner agencies, consultants, contractors, and technical institutes—mobilized to rectify and improve the state-of-the-practice. New PT durability details to enhance tendon protection and facilitate post-construction inspection were incorporated. Proprietary prepackaged grout materials were developed to replace field formulations and to improve overall grout performance. The technical institutes created education and certification programs related to PT grouting practices. Updated project specifications soon began to incorporate requirements for these certifications, the enhanced details, and the new grouts. The bridge engineering and construction community demonstrated it could work together to improve the long-term durability of post-tensioned bridges.

Later, experience showed that the use of the prepackaged grout materials had unintended consequences. While the engineered grouts were generally very effective in controlling grout bleeding, which had been the cause of most of the reported problems 15 to 20 years ago, some were found to be susceptible to a new problem—namely, segregation or soft grout. Research has shown that some of these proprietary mixtures included a high percentage of inert material that contributed to the formation of soft grout in some instances—particularly when excess water was used. When these new performance issues were reported in 2009, the industry again responded by revising the Post-Tensioning Institute grout material specification, M55, to prohibit the addition of inert fillers.

At the 2016 annual meeting of the AASHTO Subcommittee on Bridges and Structures, a state department of transportation (DOT) engineer reported that a bridge constructed in 2007 with prepackaged grout materials was now in distress. The DOT representative reported that the PT tendons contained grout with an excess amount of water—estimated to be twice the manufacturer's recommended level.

These experiences have shown that both quality materials and proper workmanship are needed to achieve reliability and long-term performance. The industry responded again with new specifications and new technologies. For more information, see the articles on pages 32, 34, and 36 in this issue.

When specified work procedures performed by qualified personnel go awry, corrective actions and perhaps revised jobsite procedures are needed. Conversely, the positive results achieved from consistently practicing quality work that leads to the good long-term performance of the vast majority of PT bridges should also be recognized.

During a recent safety workshop, presenter Michael Peelish used a slogan, "RAA" standing for **responsibility**, **authority**, and **accountability**. "RAA" can be defined for our industry as follows:

- **Responsibility**–the obligation to ensure that appropriate action is taken to follow the plans and specification procedures developed through standards of care from industry and set forth in the contract documents
- **Authority**–the jurisdiction and right to decide and take action to achieve a compliant installation by the installers and inspectors
- **Accountability**–to be answerable to the specified entity and the jurisdictional authority for a particular process or procedure

Prime construction contracts and subcontracting agreements must include the following items for assurance and to foster an accountable system:

- Clearly specify authority and responsibility of each party
- Provide adequately qualified (certified and permitted) personnel to meet the assigned responsibilities
- Conduct independent monitoring and assessment of individual processes
- Establish appropriate consequences for noncompliance or failing to take action
- Ensure consistent and unbiased application of accountable standards

We must do a better job of controlling quality, identifying problems during construction, and taking appropriate corrective action when necessary. We cannot rely solely on updated specifications to replace reliable workmanship and inspection. The entire bridge industry must make quality the responsibility of every single person involved in the project.

Cover
The Red Bridge Road bridge replacement outside Kansas City, Mo., designed by H.W. Lochner Inc. Photo: H.W. Lochner Inc.

Publisher
Precast/Prestressed Concrete Institute
Robert Risser, President

Postmaster: Send address changes to *ASPIRE*, 200 W. Adams St., Suite 2100, Chicago, IL 60606. Standard postage paid at Chicago, IL, and additional mailing offices.

ASPIRE (Vol. 11, No. 1), ISSN 1935-2093 is published quarterly by the Precast/Prestressed Concrete Institute.

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