# Public Health and Safety – Knowledge of Potentially Dangerous Condition

## Case No. 07-10

### Facts:

Engineer A designs and builds a barn with horse stalls on his property. Four years later, Engineer A sells the property, including the barn, to Jones. Later, Jones proposes to extend the barn and, as part of the extension, removes portions of the columns and footings that support the roof. The changes were approved by the town and the extension is built and a certificate of occupancy is issued. Engineer A learns of the extension and is concerned that the structure may be in danger of collapse due to severe snow loads. Engineer A verbally contacts the town supervisor who agrees to look into the matter, but no action is taken.

### Question:

Has Engineer A fulfilled his ethical obligations under the NSPE Code of Ethics?

### References:

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| *Section II.1.* | - | *NSPE Code of Ethics:* | *Engineers shall hold paramount the safety, health, and welfare of the public.* |
| *Section II.1.f.* | - | *NSPE Code of Ethics:* | *Engineers having knowledge of any alleged violation of this Code shall report thereon to appropriate professional bodies and, when relevant, also to public authorities, and cooperate with the proper authorities in furnishing such information or assistance as may be required.* |

### Discussion:

This case presents among one of the classic ethical dilemmas faced by professional engineers in their professional practice. Engineers are sometimes presented with situations involving an impact on the public health and safety and must decide, after pointing out the situation, how far their obligation reaches in seeking corrective action.

The NSPE Board of Ethical Review has considered this ethical dilemma on several occasions and each of these situations is dependent upon the facts and circumstances involved. There is no black and white standard that can be applied to these types of cases.

An illustration of how the Board has addressed this dilemma can be found in BER Case No. 00-5. There, Engineer A was an engineer with a local government and learned about a critical situation involving a bridge 280 feet long and 30 feet above the stream. This bridge was a concrete deck on wood piles built in the 1950s by the state. It was part of the secondary roadway system given to the counties many years ago. In June 2000, Engineer A received a telephone call from the bridge inspector stating this bridge needed to be closed due to the large number of rotten piling. Engineer A had barricades and signs erected within the hour on a Friday afternoon. Residents in the area were

required to take a 10-mile detour. On the following Monday, the barricades were found dumped in the river, and the "Bridge Closed" sign was found beyond the trees by the roadway. More permanent barricades and signs were installed. The press published photos of some of the piles that did not reach the ground and the myriad of patchwork over the years. Within a few days, a detailed inspection report prepared by a consulting engineering firm, signed and sealed, indicated seven pilings required replacement. Within three weeks, Engineer A had obtained authorization for the bridge to be replaced. Several departments in the state and federal transportation departments needed to complete their reviews and tasks before the funds could be used. A rally was held, and a petition with approximately 200 signatures asking that the bridge be reopened to limited traffic was presented to the County Commission. Engineer A explained the extent of the damages and the efforts under way to replace the bridge. The County Commission decided not to reopen the bridge. Preliminary site investigation studies were begun. Environmental, geological, right-of-way, and other studies were also performed. A decision was made to use a design-build contract to avoid a lengthy scour analysis for the pile design. A nonengineer public works director decided to have a retired bridge inspector, who was not an engineer, examine the bridge, and a decision was made to install two crutch piles under the bridge and to open the bridge with a five-ton limit. No follow-up inspection was undertaken. Engineer A observed that traffic is flowing and the significant movement of the bridge. Log trucks and tankers crossed it on a regular basis, while school buses went around it. In determining what was Engineer A's ethical obligation under these circumstances, the Board decided that Engineer A should have taken immediate steps to go to Engineer A's supervisor to press for strict enforcement of the five-ton limit, and if this was ineffective, contact state and/or federal transportation/highway officials, the state engineering licensure board, the director of public works, county commissioners, state officials, and such other authorities as appropriate. Engineer A should have also worked with the consulting engineering firm to determine if the two crutch pile with five-ton limit design solution would be effective and report this information to his supervisor. In addition, Engineer A should have determined whether a basis existed for reporting the activities of the retired bridge inspector to the state board as the unlicensed practice of engineering. Reviewing earlier Board of Ethical Review Case Nos. 89-7, 90-5, and 92-6, the Board noted that the facts and circumstances facing Engineer A "involved basic and fundamental issues of public health and safety which are at the core of engineering ethics." Said the Board, "For an engineer to bow to public pressure or employment situations when the engineer believes there are great dangers present would be an abrogation of the engineer's most fundamental responsibility and obligation." The Board continued by noting that Engineer A should have taken immediate steps to contact the county governing authority and county prosecutors, state and/or federal transportation/highway officials, the state engineering licensure board, and other authorities. By failing to take this action, Engineer A would be ignoring his basic professional and ethical obligations.

The facts and circumstances of the present case are somewhat different in several respects than the situation involved in BER Case No. 00-5. First, the danger involved, while possibly significant, is not nearly as imminent or widespread as the potential bridge collapse involved in BER Case No. 00-5. In addition, in BER Case No. 00-5, as an employee of the local government, Engineer A had a specific responsibility for the bridge in question and was compelled both as a professional engineer but also as a public employee to take appropriate measures to address the issue. Finally, in BER Case No. 00-5, the circumstances dictated a "full-bore" campaign to bring this matter to the attention of public officials in positions of authority who could take immediate steps to address the situation. In the present case, the limited nature of the danger does not appear to require this level of response.

From the facts in the present case, it appears that prudent action would involve Engineer A notifying in writing the town supervisor—the individual presumably with the most authority in the jurisdiction. At the same time, in the Board's view, it would have been more appropriate to first notify the current owner of his concerns regarding the structural integrity of the barn. Engineer A should make a written record of his communication with the owner and town supervisor and follow the verbal communication up with a written confirmation to the town supervisor, restating Engineer A's concern and continue to monitor the situation. If appropriate steps are not taken within a reasonable period of time, Engineer A should again contact the town supervisor in writing and indicate that if steps are not taken within a specific period of time to adequately address the situation, Engineer A will be required to bring the matter to the attention of county or state building officials, as appropriate.

**Conclusion:**

Engineer A has fulfilled his ethical obligation by taking prudent action in notifying the town supervisor—the individual presumably with the most authority in the jurisdiction. However, Engineer A should also notify the new owner in writing of the perceived deficiency.

**Board of Ethical Review:**
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