

no design analysis was submitted. Giffels concluded that none existed. However, none of this fell within the direct responsibility of Giffels's firm, whose contract was simply to do the civil engineering work required for installation.

Nevertheless, Giffels concluded that his firm could not simply let this go. He contacted the designers and asked them how they could justify putting their professional seal of approval on the design. They replied, "We don't need to. We're the government." Giffels agreed, but he persisted (to the point, he suspects, of making a pest of himself). Noting that it is easy to be a minimalist (e.g., stay within the law), Giffels worried that one might nevertheless fail to fulfill a responsibility to society. He contacted another engineering firm that had installed a similar design at 10 sites. It, too, he said, had been concerned about safety when looking at the designs. It contacted a mechanical engineering firm, asking it to do a design study. This request was turned down because of liability fears. So, the civil engineering firm asked the government agency to write a letter absolving it of

any responsibility in case of mishaps due to the inadequate design.

While not contesting the legality of this firm's way of dealing with the problem, Giffels insisted that this was not the correct way to proceed. His company refused to proceed with the installation until the safety issues were adequately addressed. The government agency agreed to bring in three other firms to deal with the concerns. Giffels firm's contract was modified to provide assurances that the safety issues would be addressed. Giffels stresses the importance of being able to communicate effectively about these matters—a communication responsibility. Good communication, he says, is essential to getting others on board.

Although successful in his efforts to ensure safety, Giffels says that this is not a story that would receive press notice. However, *not* resisting, he insists, might well have resulted in press coverage—such as from the deaths of firefighters going through their simulations.

Discuss the ethical challenges facing Giffels and his strategy in dealing with them.

CASE 42

*TV Antenna*¹¹⁶

Several years ago, a TV station in Houston decided to strengthen its signal by erecting a new, taller (1,000-foot) transmission antenna in Missouri City, Texas. The station contracted with a TV antenna design firm to design the tower. The resulting design employed twenty 50-foot segments that would have to be lifted into place sequentially by a jib crane that moved up with the tower. Each segment required a lifting lug to permit that segment to be hoisted off the flatbed delivery truck and then lifted into place by the crane. The actual construction of the tower was done by a separate rigging firm that specialized in such tasks.

When the rigging company received the 20th and last tower segment, it faced a new problem. Although the lifting lug was satisfactory for lifting the segment horizontally off the delivery truck, it would not enable the segment to be lifted vertically. The jib crane cable interfered with the antenna baskets at the top of the segment. The riggers asked permission

from the design company to temporarily remove the antenna baskets and were refused. Officials at the design firm said that the last time they gave permission to make similar changes, they had to pay tens of thousands of dollars to repair the antenna baskets (which had been damaged on removal) and to remount and realign them correctly.

The riggers devised a solution that was seriously flawed. They bolted an extension arm to the tower section and calculated the size of the required bolts based on a mistaken model. A sophomore-level engineering student who had taken a course in statics could have detected the flaw, but the riggers had no engineers on their staff. The riggers, knowing they lacked engineering expertise, asked the antenna design company engineers to review their proposed solution. The engineers again refused, having been ordered by company management not only not to look at the drawings but also not to visit the construction site during the lifting of the last segment. Management of the design firm

feared that they would be held liable if there were an accident. The designers also failed to suggest to the riggers that they should hire an engineering consultant to examine their lifting plans.

When the riggers attempted to lift the top section of the tower with the microwave baskets, the tower fell, killing seven men. The TV company was taping the lift of the last segment for future TV promotions, and the videotape shows the riggers falling to their death.

Consider how you would react to watching that tape if you were the design engineer who refused to look at the lifting plans or if you were the company

executive who ordered the design engineer not to examine the plans.

To take an analogy, consider a physician who examines a patient and finds something suspicious in an area outside her specialty. When asking advice from a specialist, the physician is rebuffed on the grounds that the specialist might incur a liability. Furthermore, the specialist does not suggest that the patient should see a specialist.

What conceptions of responsibility seemed most prevalent in this case? Can you suggest other conceptions that might have helped avoid this tragedy?

CASE 43

*Unlicensed Engineer*¹¹⁷

Charles Landers, former Anchorage assemblyman and unlicensed engineer for Constructing Engineers, was found guilty of forging partner Henry Wilson's signature and using his professional seal on at least 40 documents. The falsification of the documents was done without Wilson's knowledge, who was away from his office when they were signed. Constructing Engineers designs and tests septic systems. The signed and sealed documents certified to the Anchorage city health department that local septic systems met city wastewater disposal regulations. Circuit Judge Michael Wolverton banned Landers for 1 year from practicing as an engineer's, architect's, or land surveyor's assistant. The judge also sentenced him to 20 days in jail, 160 hours of community service, \$4,000 in fines, and 1 year of probation. Finally, Landers was ordered to inform property owners about the problems with the documents, explain how he would rectify the problem, and pay for a professional engineer to review, sign, and seal the documents.

Assistant Attorney General Dan Cooper had requested the maximum penalty: a 4-year suspended sentence and \$40,000 in fines. Cooper argued that "the 40 repeated incidents make his offense the most serious within the misuse of an engineer's seal." This may have been the first time a case like this was litigated in Alaska. The Attorney General's office took on the case after seeking advice from several professional engineers in the Anchorage area.

According to Cooper, Landers said he signed and sealed the documents because "his clients needed

something done right away." (The documents were needed before proceeding with property transactions.) Lander's attorney, Bill Oberly, argued that his client should be sentenced as a least offender since public health and safety were not really jeopardized—subsequent review of the documents by a professional engineer found no violations of standards (other than forgery and the misuse of the seal). The documents were resubmitted without needing changes.

However, Judge Wolverton contended that Lander's actions constituted a serious breach of public trust. The public, he said, relies on the word of those, like professional engineers, who are entrusted with special responsibilities: "Our system would break down completely if the word of individuals could not be relied upon."

The judge also cited a letter from Richard Armstrong, chairman of the Architects, Engineers, and Land Surveyors Board of Registration for Alaska's Department of Commerce and Economic Development. Armstrong said,

Some of the reasons for requiring professional engineers to seal their work are to protect the public from unqualified practitioners; to assure some minimum level of competency in the profession; to make practicing architects, engineers, and land surveyors responsible for their work; and to promote a level of ethics in the profession. The discovery of this case will cast a shadow of doubt on other engineering designed by properly licensed individuals.