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Continuing Education Course #536
Engineering Ethics:
Navigating Your Way Through Expert Reports and Expert Testimony

1. Engineering ethics require Professional Engineers to:

- a. Tell the truth and avoid deception of any type
- b. Perform their services only in areas of their competence
- c. Conduct themselves honorably and responsibly
- d. Hold paramount the health and safety of all parties
- e. All of the above

2. Dauber challenges...

- a. Are usually restricted to only public works projects.
- b. Are managed by the Jury during trial.
- c. Are used by the Judge in being the gatekeeper of Expert Witness testimony.
- d. Discourage the Expert Witness from taking on assignments for only Plaintiffs.
- e. None of the above

3. Expert Reports...

- a. Must include all previous draft versions of the report as an appendix.
- b. May be reviewed by the Judge during the Discovery phase of the lawsuit.
- c. May be reviewed by the Jury prior to trial.
- d. May be revised during the trial with the consent of the Judge.
- e. None of the above.

4. Engagement Letters...

- a. Should be limited to no more than five pages in length.
- b. Should clearly describe the scope of services and billing rates of the Expert Witness.
- c. Should be deleted from the project file prior to the trial.
- d. Cannot be amended without the permission of the Court.
- e. None of the above.

5. Good Engineering Practice...

- a. Applies to the field of Engineering, Science, and Accounting.
- b. Applies only to Registered Professional Engineers but not to Engineers in Training.
- c. Must include the use of encrypted data.
- d. Requires that the Board of Engineers review each engineering project.
- e. Always incorporates the health and safety of the public.

Lawsuit No. 1

A large mechanical crane was employed at ABC Chemical Plant to remove old piping that was being replaced as part of a plant-wide upgrade. DEF Mechanical Contractors was hired to bring in a small crane and operator

and to assist in removing the old piping from the work area. The work was initially scheduled for October 10, but anticipated heavy rainfall prompted ABC Chemical Plant to accelerate the work to October 9 before the storm hit. The weather conditions on October 9 featured gusty winds but no rain, and so the work proceeded.

DEF Mechanical Contractors brought in a larger crane for the work, and even though ABC Chemical questioned this decision they nevertheless approved the use of the larger crane due to the tight schedule. During the work, the crane lifted up the old piping high into the air. During a high wind gust, the suspended old piping swung about wildly and struck the side of an adjacent fuel tank, causing the tank to rupture and the contents leak out onto the ground. The fuel quickly spread laterally, entering the surface soil and running under concrete foundations. A quick remedial response ensued, but only about 10% of the fuel was recovered, with the remaining 90% entering the soil and groundwater, creating a need for extensive remediation. The cost of the entire remediation was estimated to be up to \$10,000,000 by an environmental consultant retained by ABC Chemical Plant.

DEF Mechanical Contractors referred the incident to their insurance company, but the insurance company denied coverage since ABC Chemical Plant had authorized the work schedule under windy conditions. ABC Chemical Plant's insurance company also denied coverage since they alleged the actions of DEF Mechanical Contractors led to the incident. ABC Chemical Plant then filed a lawsuit against DEF Mechanical Contractors and their insurance company. DEF Mechanical Contractors' defense alleged that ABC Chemical Plant was liable since they were the party that insisted on performing the work under windy conditions and had agreed to the crane used in the work.

You were contracted by DEF Mechanical Contractors as an Expert Witness to support their defense strategy.

6. During the process of finalizing your engagement with DEF Mechanical Contractors, the attorney representing them limited your work and testimony to the task of estimating the cost of remediating the spill. You proceeded to review the nature and extent of contamination and the associated cost to remedy the site. After you drafted your Expert Report, the attorney asked you to also opine on the stability of the crane in the presence of wind gusts. You were asked to include another section in your report that discussed the crane issue, even though your practice area is limited to soil and groundwater remediation, and you had no formal training or experience in structural integrity, the safe operation of cranes under varying site conditions, the effect of gusty winds on equipment operation, etc.

Your appropriate response should have been:

- a. Inform the attorney that you could not add the section to your report, and then request to be removed from the lawsuit as an Expert Witness
- b. Inform the attorney that you could add a section to your report, but the discussion would result in additional fees.
- c. Inform the attorney that a structural engineer with experience in crane operation would be required, and that you could then rely upon his/her work.
- d. Inform the attorney that it is best to avoid all such discussions, and simply see if the matter surfaces during the trial.
- e. None of the above.

7. One of the issues that surfaced during your deposition following the issuance of your Expert Report was whether or not you had specific expertise and experience in assessing damages to fuel tanks, including damages resulting from the crane striking the tank causing it to rupture and leaking out its contents onto the ground. The opposing attorney sought to strike you as an Expert Witness.

Your appropriate response should have been:

- a. Testify that you could rightfully opine that the suspended piping striking the tank and causing the release did not require special expertise in cranes or tanks.
- b. Testify that any Professional Engineer would recognize the cause and effect of such an occurrence.
- c. Testify that the end result of the incident was ultimately caused by poor decision-making by all the parties.
- d. Testify that the environmental damages and the cost to remediate the site were independent of the size or

construction of the tank, or how it was damaged.

e. None of the above.

8. During your deposition, you were asked what minimum wind speed would have caused the suspended piping to sway sufficiently to strike the tank.

Your appropriate response should have been:

a. The wind speed did not matter since cranes should not topple over from wind gusts.

b. The wind speed can be highly variable at the site and is thus unknown.

c. You are not an expert in meteorology, but wind speed can be problematic at industrial sites.

d. You are not an expert in cranes or crane operations, and thus would defer to some other expert's finding and opinion.

e. None of the above.

9. The attorney for DEF Mechanical Contractors asked you to include the following language in your Expert Report: "The estimated cost of up to \$10,000,000 as stated by ABC Chemical Plant's environmental consultant is highly exaggerated and totally incorrect. Their consultant does not have the expertise to determine such costs. The cost could be much less. I think that the cost could be as low as \$2,000,000. It could be even lower if ABC Chemical Plant would conduct the remediation tasks themselves instead of using outside contractors."

Your appropriate response should have been:

a. I have estimated the cost of remediation based on my understanding of the site conditions, and that cost is provided in my Expert Report.

b. The consultant hired by ABC Chemical Plant is a hired gun who always makes outlandish cost estimates so that the parties will be forced to settle.

c. Any impact to the site should be the responsibility of ABC Chemical Plant since they are the site owner/operator.

d. The insurance companies should share in the cost of remediation since active policies were available to all parties.

e. None of the above.

10. During the trial, you couched some of your testimonies on causation with the phrase "more likely than not." You also opined, "More likely than not, the cost to remediate will be \$2,000,000 to \$3,000,000." The opposing attorney interrogated you, asserting that your use of that term indicates that you really did not know the cause or effect, or the cost of remediation. Otherwise, you would have been more dogmatic and simply presented a precise numerical cost.

Your appropriate response should have been:

a. The term "more likely than not" is an acceptable engineering term in Court.

b. The term allows for other possible alternative explanations; however, based on the information and data that you reviewed, the term is consistent with your findings and opinions.

c. The precise cost of remediation is not known; there are many contingencies that could affect the ultimate cost.

d. There remain several unknowns; thus, the term is more appropriate than a very precise, absolute unequivocal statement.

e. All of the above.

Lawsuit No. 2

In 1950 a commercial property was developed for a strip mall. The site's sewer system was never developed with the intent of managing toxic or corrosive waste. The developers anticipated that several commercial businesses would serve as tenants. However, in 1952 after no tenants were found, an auto dealership offered to acquire the property. A contract was signed between the commercial developer and the auto dealership. In 1955, the commercial developer filed for bankruptcy.

The auto dealership reconfigured the above-ground assets but not the subsurface sewer system. It then operated from 1952 to 2020. In 2020 the dealership sold the property to a large carwash commercial establishment. In

reconfiguring the property, the carwash demolished the above-ground assets and excavated the subsurface in order to install a modified sewer system. During the excavation their construction contractor noticed a large pocket of hydrocarbon contamination emanating from an underground iron ductile pipe. The pipe was totally corroded and appeared to be the cause of the release.

Following that discovery, the construction contractor engaged an environmental testing firm to collect soil and groundwater samples at the property. The results of the study indicated that a variety of hydrocarbons and other corrosive chemicals had been released by the auto dealership at the location of the corroded pipe and had migrated offsite, creating a large threat to adjacent commercial and residential properties. The carwash hired an environmental consultant that estimated the cost of remediation to be between \$3,000,000 and \$5,000,000.

Regulatory agencies became involved. Insurance companies became involved. Lawsuits were filed between the carwash (Plaintiff) and the auto dealership (Defendant) in an attempt to recover the remediation costs. The auto dealership had insurance coverage with six different carriers during the 1952 - 2020 timeframe. Thus, the insurance carriers all denied coverage since the date of failure of the ductile iron pipe was unknown.

You were contacted by the attorney representing the auto dealership. His legal strategy was to assert that the failure of the pipe had occurred during the 2015 - 2020 timeframe, when a specific carrier had coverage of the property and was sufficiently solvent to pay for the cost of remediation. You accepted the assignment of working for the attorney in representation of the auto dealership.

11. The attorney requested that you serve as an Expert Witness on the lawsuit that ensued following this incident. You would represent the auto dealership in its claims. Your specific assignment was to determine when the ductile iron pipe failed. You provided the attorney with an Engagement Letter that listed specific tasks that you would undertake. Later, when you were in the midst of your work, you realized that additional tasks would be required. However, since the attorney's budget was limited, you decided not to request additional funding for such tasks.

Your appropriate response should have been:

- a. Changes of scope are frequent and can be expected.
- b. There is no ethical reason why you should not be compensated for additional work.
- c. The new tasks should only be undertaken with the understanding that you have the necessary expertise and experience for such work.
- d. Clear and open communication with your client is always the correct approach.
- e. All of the above.

12. After accepting the assignment, you found out that you had worked with the construction company in the past on several projects. It was your feeling that the company was credible and honest. During the litigation, however, you never disclosed your historical relationship with the construction company since you did not feel that this past relationship had anything to do with the failure timeframe of the pipe.

Your appropriate response should have been:

- a. It is not necessary to disclose each and every aspect of your work on a litigation case.
- b. You should disclose this relationship only if asked under oath.
- c. You should disclose this relationship to your client as soon as you determine that this may constitute a conflict of interest.
- d. It is the responsibility of the construction company to make a disclosure of conflict of interest, not you.
- e. None of the above.

13. After the engagement of your services, the attorney indicated to you that he had a significant amount of pertinent information about the history of the site. However, due to time constraints, he only provided you with what he considered to be the key 50 pages of documents for you to review. There remained another 1,000 pages he felt would not be of benefit to you, and in fact, may even be adverse to the auto dealership's legal position. Since this seemed to be a small lawsuit with a limited budget, you agreed to review only the 50 pages and not worry about the 1,000 pages that you did not review.

Your appropriate response should have been:

- a. Attorneys are free to provide the Expert Witness whatever information that they choose to provide.
- b. Attorneys are free to withhold whatever information that they choose from the Expert Witness.
- c. As an Expert Witness, you had the duty to inquire about all available information and have input into what the Attorney would provide and not provide.
- d. Because of your work experience on similar lawsuits, you were confident that you could prepare a credible Expert Report using only the information provided.
- e. All of the above.

14. The attorney for your client asked you to change your Expert Report wording that said "Due to a lack of testing and other information, it is not possible to determine the date that the pipe failed" to "Due to a lack of testing and other information, it is not possible to determine the date that the pipe failed; however, more likely than not, the pipe failed during 2015 - 2020. You changed the wording according to the attorney's request.

Your appropriate response should have been:

- a. While it is appropriate for you to consider your client's feedback, this feedback should not force you to change your findings or opinions.
- b. The ultimate decision on findings and opinions reside with the Expert Witness.
- c. All findings and opinions should be proffered with the phrase "more likely than not."
- d. If the available information and data do not support specific opinions, such opinions should not be proffered.
- e. All of the above.

15. After issuing your final Expert Report, during your deposition, you were asked by the opposing attorney if you considered alternative explanations of what occurred. Indeed, an early draft of your Expert Report included a section of alternative explanations of what occurred, but some of them were possibly adverse to your client's legal position. Your client suggested that you not mention those alternative explanations, and asked you to delete that section, which you agreed to do.

Your appropriate response should have been:

- a. It is unethical for you to opine on matters that are adverse to your client's legal position.
- b. It is unethical for you not to opine on matters that are adverse to your client's legal position.
- c. Your primary mission as an Expert Witness is to win the lawsuit for your client.
- d. Offering alternative explanations to a Jury only serves to confuse them.
- e. None of the above.

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