

A Civil Engineer's Risky Non-Technical Journey Through Ethics, Law, and Business  
A Text for Civil Engineering Seminar At the University of Kentucky College of Engineering  
by J. Richard Cheeks, PE JD

Much to my chagrin, as I read the manuscript of my new book in preparation for class, I discover errors that remain after multiple attempts to identify and eliminate them from the text. I will update this ERRATA SHEET as I discover additional errors over the course of this semester.

One of the obstacles that all writers face is finding errors in the writer's own writing. The writer knows what the writer intended to write, and the writer's eyes (and brain) tend to see what should be there rather than what is there. For this reason, fresh eyes can identify these types of errors.

Each of you have a set of such fresh eyes, and each of you will be reading this material.

I will award 5 bonus points to any student this semester who identifies an error in the current manuscript that is not already cited on this ERRATA SHEET. A student may submit an error to me by email citing the location of the error and describing what the error is. In response, I will review the submitted error, and I will notify the submitting student of the outcome of my investigation by return email. If it is an error that has not been previously added to this ERRATA SHEET, I will add the error to the ERRATA SHEET with a notation of the student who identified it and the date of the addition to the ERRATA SHEET, and I will add 5 bonus points to that student's point total for the semester.

Each time I modify this ERRATA SHEET, I will upload the updated version to CANVAS, and students can track the status of identified errors by downloading this PDF from time to time either via CANVAS or from the CE-401 webpage.

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#### ERRATA SHEET<sup>1</sup>

1. Page 10, the sentence, "Expectations pay a huge role in success." should say, "Expectations play a huge role in success." Identified by Jennifer L. Kisabeth on January 28, 2021.
2. Page 21, the sentence, "Watkins and Associates placed a sign in its lobby that said, "We work fast, good and cheap: Our clients can pick any two" " requires a period at the end, after "two" and inside the punctuation mark. Identified by Auburn Mattingly on January 26, 2021.
3. Page 25, the sentence that says, " The engineering profession also advocates QBS because QBS Protects the financial interests of the owner ..." should be modified by making the "P" in "Protects" lowercase to read "protects" Identified by Auburn Mattingly on January 26, 2021.
4. Page 34, the sentence that says, ""The following passage, written for the 30th anniversary of this disaster captures the basic elements of the case" is missing a comma. It should read as follows "The following passage, written for the 30th anniversary of this disaster, captures the basic elements of the case." Identified by Natalie Fields on January 30, 2021.
5. Page 40, simplify the first sentence of the second paragraph under the Heading "JAMES vs. DE GEORGE" from "James' issue with the first criteria arises from De George's threshold for satisfying the first criteria is "serious and considerable harm" which James finds too restrictive." To read, "James objects to the first criterion because he believes the threshold for satisfying the "serious and considerable harm" is too restrictive."
6. Page 52, the sentence that begins, "On October 20, 1978, Jack Gillum (President of GC) wrote ..." states the wrong year which should be 1979. Identified by Auburn Mattingly on February 8, 2021.
7. Page 57, a period is missing at the end of the last sentence on the page.
8. Page 78, a passage about the meaning of GKC should perhaps be modified for clarity of the origin of the GKC acronym, as follows: "previously. The first criterion is an adaption of the **G**olden Rule while the second

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<sup>1</sup> All errata items in red have been corrected in the original manuscript. Each change is preserved here for completeness of this record. The items in black are items identified subsequent to the December 2020 revisions.

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criterion recognizes the universality of the core ethical values and principles as described by Kant's Categorical Imperatives. The third criterion recognizes that when a person faces an ethical dilemma, that person must violate an ethical principle or value in acting." This is the second sentence under the heading "MAKING ETHICAL DECISIONS-THE CRITERIA"

9. Page 86, the sentence, "Virtue ethics. in contrast, includes ... " should be " Virtue ethics, in contrast, includes ..." Identified by Auburn Mattingly on February 20 2021.
10. Page 87, the last sentence of the first paragraph under the heading 'ETHICAL EGOISM" misspells "pursuing" and should be corrected.
11. Page 98, the last sentence says, "To this end, the City established heavy metal concentration levels for industrial waste discharge permits that are 10% of similar discharge criteria establish by the US EPA." This sentence should read, "To this end, the City established heavy metal concentration levels for industrial waste discharge permits that are 10% of similar discharge criteria established by the US EPA." This change from "establish" to "established"
12. Page 99, consider changing the last sentence of the 3<sup>rd</sup> paragraph from "David believes the increased lead and arsenic will damage ..." to "David concludes the increased lead and arsenic may damage ..."
13. On Pages 100-101, I quote several specific statements made by various people in this case "about the consequences of the dilution option." My goal is to capture the range of statements on this specific issue. If there are other direct quotes from the video that should be considered for this specific part of the analysis, please bring them forward for consideration. If I agree, I will add them to a later edition of the book, and I will award the bonus points this semester for the suggestion.
14. Page 101, the end of the first bulleted item has a double period. Delete the redundant period.
15. Page 109, the last sentence in the paragraph at the top of the page says, "This is the political compromise that the ended Gilbane's rule making process in this case." and should read, "This is the political compromise that ended Gilbane's rule making process in this case." Identified by Jennifer Kisabeth on March 7, 2021.
16. Page 111, the first sentence of the last paragraph says, "The fifth De George criterion risk is even more problematic for David." This should be changed to "The fifth De George criterion is even more problematic for David."
17. Page 114, the last sentence of the 1<sup>st</sup> paragraph now reads, "... the he Registration Board found him negligent and took Robert's engineering license for at least 6 months." This should be revised to say, "... but the Registration Board found him negligent and took Robert's engineering license for at least 6 months."
18. Page 117, the hyphenation of Porter-Rodman in the first sentence under the heading "TESTING WATER...AND EHTICS" is inconsistent with the absence of the hyphen throughout the paragraph. Remove the hyphen. Identified by Isaac Smith on March 6, 2021.
19. Page 117, the same sentence as in #18 above, there should be a comma added after the word "results".
20. Page 128, in the second sentence under the heading "DO CYA LETTERS WORK?" "question" is misspelled. Correct the spelling. Identified by Natalie Fields on March 17, 2021.
21. Page 129, a sentence in the top paragraph says, "Furthermore, ethics requires holds each person accountable to know what these universal ethical duties require and to comply with them." This sentence should be changed to read, " Furthermore, ethics holds each person accountable to know what these universal ethical duties require and to comply with them."
22. Page 131, the first sentence under the heading "THE LAW" has a comma after "system" that should be removed. Identified by Jennifer Kisabeth on March 14, 2021.
23. Page 132, the image at the bottom right corner has a misspelling in "Rulingss" Correct image.
24. Page 137, the last sentence under the heading "UNDERSTANDABLE PLAIN LANGUAGE BETTER THAN LEGALESE" reads, " ... and contracts written in plain English, readily understandable to anyone reading it,

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- is preferable." For verb actor agreement, this should read, "... and contracts written in plain English, readily understandable to anyone reading it, are preferable."
25. Page 144, the first line says, "... exercised by members of a profession is good standing in the community at the time of the event creating the cause of action." This should be revised to read, "... exercised by members of a profession in good standing in the community at the time of the event creating the cause of action."
  26. Page 151, the second line says, "... the Rule of Civil Procedure ..." and should be "... Rules of Civil Procedure .."
  27. Page 154, the second line refers to "... rules of civil procedure .." which should be "... Rules of Civil Procedure ..." for consistency.
  28. Page 156, the last sentence on the page has a quotation that begins, " the infamous ... " and the space between the opening quotation mark and the first letter of "the" should be removed.
  29. Page 160, the first sentence of the first full paragraph says, "One should not expect the United States to adopt loser pays rule of law for a wide variety of reasons including Constitutional grounds." Add "a" between "adopt" and "loser" to read "adopt a loser"
  30. Page 160, the term loser pays is hyphenated whereas other uses of the term are not hyphenated. Remove the hyphen four times in the last paragraph under this heading.
  31. Page 163, the heading, "REASONABLE CLIENT EXPECTATIONS ARE KEY TO A SUCCESSFUL PROJECT" includes a misspelling of "EXPECTATIONS". Correct. Identified by Seth Atkins on March 30, 2021.
  32. Page 184, the sentence reads "However, there is no legal duty do so" and I believe it should read "However, there is no legal duty to do so." Identified by Auburn Mattingly on April 4, 2021.
  33. Page 188, the sentence that reads, "Shortly after K&G began construction it encountered rock material in the excavation zone, contrary to its bid assumption that the excavation would be free of rock." should be revised to read, "Shortly after K&G began construction, it encountered rock material in the excavation zone, contrary to its bid assumption that the excavation would be free of rock."
  34. Page 189, the last sentence in the 2<sup>nd</sup> paragraph that reads, "Finally, in 3 weeks, I will review the entire case during the class session" should be revised to read, " Finally, in week 3, I will review the entire case during the class session."
  35. Page 189, the last two sentences in the paragraph that begins, "Each week, you ..." are redundant and the last sentence should be deleted.
  36. Page 190, the last sentence of the first paragraph is not in proper form, and should be changed from " During your strategy sessions to learn more about its group's specific positions, ask more specific questions, meet with its attorney, and develop a negotiation strategy" to "During the strategy sessions, groups can explore its specific positions, ask specific questions about the group's position, meet with its attorney, and develop a negotiation strategy."
  37. Page 190, the first line of the last paragraph read, "The most promising site seemed to be Alcuff property, a 20-Acre parcel ..." Insert "the" between "be" and "Alcuff"
  38. Page 191, near the bottom of the page, the text provides two excerpts from the Geo-Ter report, but these excerpts are not appearing as quotes. Fix this at each location by indenting the quoted material.
  39. Page 193, a passage provides the options available after the contractor encountered the rock in the excavation, and in essence the options are either a \$50,000 blasting change order or "we stop work." However, the case has evolved, and the stop work option has become "we stop work while we demobilize the small equipment we now have and mobilize large equipment that can remove the rock with the soil. This will delay the project at least 2 weeks and add \$20,000 to the cost." Make this change on page 193 of the text and in The Case handout document.

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40. Page 205, the last sentence in the "supplemental information" section should be corrected as follows, "Each of the groups decided whether to use their information during negotiations, and if used, how do so. Furthermore, each of the groups endured the consequences of these decisions."
41. Page 219, last paragraph says "If the contractor refuses finish the project under its contract, it ..." need a "to" added between "refuses" and "finish" Identified by Clay Norris on April 27, 2021
42. Page 219, last paragraph says "The owner will argue that the contractor's breach the caused the increase in cost and that the contractor is liable for that increase." should delete "the" between "breach" and "caused" Identified by Clay Norris on April 27, 2021
43. Page 219, last paragraph says "The contractor will argue that the owner, not the contractor, is the breaching party, making the owner is liable for the contractor's loss of anticipated profits, perhaps as much as \$250,000 to \$500,000 for this project." Delete "is" between "owner" and "liable" Identified by Clay Norris on April 27, 2021
44. Page 228, the first sentence should read as follows, "In 2020, it is inescapable that design professionals, especially civil engineers, have a duty to protect construction workers." by deleting the "," after "that".
45. Page 229, the sentence that reads, "The victims of these trench collapse injuries and deaths on construction jobsite could not prevent their own demise or injuries because they did not do anything to cause the collapse." should be revised to read, "The victims of these trench collapse injuries and deaths on construction jobsites could not prevent their own demise or injuries because they did not do anything to cause the collapse." The change is making "jobsite" plural.
46. Page 239, the final sentence under the heading, "FRED'S PRIOR EMPLOYMENT WITH CHEMITOIL" should be expanded to say, " This is a red herring issue in this case relative to this essay assignment and Fred's critical decision."
- 47.

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Substantive Issues for consideration

- a) Page 42, add to the section "WHY IS IT NECESSARY TO "EXHAUST" INTERNAL POSSIBILITIES, TO THE BOARD OF DIRECTORS?" a corollary point that "exhaustion" is also needed to protect the concerned employee in the event that his concerns are misplaced or invalid. Replace the final paragraph to this section with the following passage.

Now, for the sake of argument, assume that the employee's view is incorrect, and the company's activities will not cause serious and considerable harm. The exhaustion requirement can also work to protect this employee from the embarrassment, retribution, and personal harm that is likely to befall whistle blowers when there is no pressing public interest served by a potential whistle blowing action.

It seems only fair that upper management should have an opportunity to know about the improper actions and probable consequences before a whistle blowing action occurs so upper management can correct the mistakes of these lower level employees without having the company embarrassed or harmed by whistle blowing. It also seems fair that the concerned employee listen to upper management's explanation why the employee's concerns are misplaced so the employee can retreat from an unjustified whistle blowing action based on more reliable information.

The De George "exhaustion" criterion (#3) is in place to protect the company from renegade employees whose action could not only harm the public but damage the company as well. In addition, the "exhaustion" requirement gives the company an opportunity to correct the issue once it learns about the details. The De George "exhaustion criterion (#3) also protects a concerned employee from blowing the whistle on the basis of mere suspicion, or even a misguided belief that the company's activities will cause serious and considerable harm, when in fact no such harm is likely to occur.

- b) Page 98-99, there is a discussion about Z-Corp's elevated test results, and Diane Collins directs Phil Port to find solutions, not problems. I think the most obvious solution is additional dilution of the effluent stream to the test results will be in compliance. Add 1 or 2 sentences to the end of the first paragraph on page 99 to this effect. As such, there would be no need to engage Tom Richards on this matter. For example, start the following paragraph with the following:

Since the discharge permit allows Z-Corp to dilute the effluent stream to satisfy the concentration levels, the obvious solution would be additional dilution prior to testing and discharge. Implementation of this solution would negate the need to engage Tom Richards about the occasional tests yielding slightly higher concentration levels. Nevertheless, Phil Port ...

Then, start a new paragraph with the sentence that starts, "Mr. Richards performs ..."

However, the more appropriate place to insert this information may be Chapter 7's analysis of this case. For example, on page 108, under the heading "THE OPTIONS" the following passage could be added after the opening paragraph.

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Since the discharge permit allows Z-Corp to dilute the effluent stream to satisfy the concentration levels, the obvious solution for Z-Corp when David initially discovered the occasional elevated concentrations would have been the additional dilution prior to testing and discharge. Implementation of the dilution option at the beginning of this case would have negated the need to engage Tom Richards about the occasional tests yielding slightly higher concentration levels and probably resolved the matter quickly. However, the framers of this case took another approach that was more certain to create the ethical conflicts.

- c) Page 107, the discussion about stakeholders in Gilbane Gold should be revisited. During class discussions in the Spring 2021 section 2, a student asked why the taxpayers of Gilbane are stakeholders to David Jackson's decision while the farmers who purchase the Gilbane Gold for their fields, and the consumers who buy the crops grown on land treated with Gilbane Gold are not stakeholders to David Jackson's decision. The way the paragraph currently reads in the text, the stakeholders identified are "David (and his family if he has one), Z-Corp, including Z-Corp's Gilbane management team and its stockholders, and the City of Gilbane." The City of Gilbane is a stakeholder because of its financial interest in Gilbane Gold, and its status as the issuer of the discharge permit. The discussion that follows to exclude the farmers and the consumers of the farmers' crops as stakeholders should be expanded to include the Gilbane Taxpayers, who are stakeholders to the City's decisions about regulations and controls on heavy metal discharges into the City's sanitary sewer system and decisions the City may make regarding the safety of Gilbane Gold and its commercial viability. Therefore, the last sentence in the paragraph should read, "The farmers and Gilbane property owners are stakeholders to decisions that the City of Gilbane will make about regulations and the commercial viability of the sludge, and the consumers are stakeholders to the farmers' decisions about their use of Gilbane Gold on their fields."
- d) Page 108, at the end of the section "THE OPTIONS," consider adding a sentence that says the actions that David seeks are not David's options, as these options belong to Z-Corp and the City of Gilbane respectively.
- e) Page 112, the first paragraph that reads "David Jackson is an engineer, and as we have discussed and seen, engineers, by virtue of professional status, may have a higher responsibility to report Z-Corp. However, that reporting requirement would call for communication with the Board of Registration or other "proper authorities," not with a reporter." should be deleted. It does not fit here. Move it to page 111 at the end of the first-tier analysis as follows. "De George does not grant moral authority, much less a moral duty for David Jackson to blow the whistle. However, David Jackson is an engineer, and as we have discussed and seen, engineers, by virtue of professional status, may have a higher responsibility to report Z-Corp. However, that reporting requirement would call for communication with the Board of Registration or other "proper authorities," not with a reporter."
- f) Page 118, the second paragraph notes that Jim Duffy wants Porter Rodman to adopt a policy that prohibits partial reporting of relevant information because that is an engineer's professional obligation that enables others to rely on an engineer's work. Referring back to the Hyatt Regency case, Gillum-Colaco Engineers had a policy that they would examine all special connections. Of course, Gillum failed to do exactly that, and the severity of that omission was magnified by the fact that Gillum violated its own policy. Does Porter Rodman really need a policy to require its engineers to comply with this provision of the NSPE Code of Ethics? Is such a policy even advisable, given the court's finding in the Gillum/Duncan case about a policy violation compounding the severity of a violation? Consider adding a footnote here referring back to the Hyatt and raising these questions. The footnote could say,

The discussion of the Hyatt Regency case pointed out that the "court treated Gillum and Duncan's failure to comply with its company policy to perform "a detailed check on all special connections like the box connection at the Hyatt ... [as] proof of their negligence. While intended to reduce

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liability, failure to comply may be worse than no policy at all." Does Porter Rodman really need a policy to require its engineers to comply with this provision of the NSPE Code of Ethics? Is such a policy even advisable, given the court's finding in the Gillum/Duncan case about a policy violation compounding the severity of a violation?

- g) Page 188, the first sentence and footnote 235 require rewording. The sentence should read, "The document linked in Footnote 234<sup>235</sup> provides the relevant facts and events in this case." The Footnote 235 should read, "Id. The Case is also included in this text on pages 190-193."
- h) Page 163, there is a numbered list of suggested Dispute Avoidance and Loss Prevention suggestions. Consider formatting modifications, like below:

1. **Select Clients with Care** – Not everyone can or should be your client
2. **Evaluate Project Risk Carefully** – There is no such thing as a Risk-Free Project
3. **Understand the Contract Before you sign** – Asking a lawyer to review the contract after you sign it is of no value
4. **Document Relevant Project Activities** – Document activities that affect scope, cost, schedule, and allocation of responsibility or risk
5. **Apply Internal Quality Control to All Activities** – For example, nothing goes out the door without a second set of eyes on the analysis, assumptions, calculations, word selection, language, etc.
6. **Assign experienced, qualified personnel to the job** – Inexperienced personnel or experienced personnel working long hours is a recipe for errors
7. **Recognize and respond to early warning signs** – Problems do not go away but only get worse when warning signs are ignored

- i) Page 202 to 203, there is a discussion about owner delegation to the prime design professional the authority to approve change orders. As I read this entire section, I think a slight expansion of this section might be helpful by at least posing relevant questions that an owner and the design professional should consider before proceeding with such a delegation of authority. Consider adding the following at the end of this section:

- What risks does such a delegation pose to the design professional and owner?
- What benefit does such a delegation provide the owner and design professional?
- Should the design professional receive an additional fee for accepting this responsibility and risk?

j)