2. You are the project manager. Discuss your options. Define YOUR position and defend it.

Note: Ethics are personal interpretations of the proper course of professional conduct in a given situation. While there are "norms" for ethical decisions, they are very much influenced by individual perceptions and therefore can justifiably show significant variations.

You will be graded on your analysis and defense of your ethical positions on the above issue, not on the positions themselves.

10.3. Nick is chief engineer in a phosphate fertilizer plant that generates more than one million tons per year of gypsum, a waste collected in a nearby pile. Over many years, the pile has grown into a mountain containing 40 million tons of waste. There is little room at the present site for any more waste, so a new gypsum pile is planned.

Current environmental regulations call for the elimination of acidic water seepage and groundwater contamination by phosphates and fluorides. Nick's design for the new pile, which has been approved, incorporates the latest technology and complies with U.S. Environmental Protection Agency and state regulations. However, he also knows that the old pile-although exempt from the current regulations-presents a major public hazard. When it rains, acidic water seeps through the pile, carrying phosphates into the groundwater.

In a confidential report to management, Nick recommends measures that will prevent the seepage from happening. His company turns down his proposal, stating that, at present, no law or regulation demands such remedy. Use the four virtues, four-component model, evaluation checklist, ethics checklist, and five P's to help you analyze the situation.

Problem adapted from *Chemical Engineering*, p. 40, March 2, 1987.

10.4. The environmental and safety control group in a circuit-board etching and plating plant has just completed a program to improve the measurement of toxic releases into the atmosphere in response to stricter regulations recently issued by the state health and environmental commission.

Small amounts of a toxic material are detected for the first time by means of a new instrument purchased and installed at the suggestion of Joan, the group leader. The detection method specified by the state does not reveal any trace of chemical.

A search through books and magazines shows that this material is not dangerous in the low concentrations detected, although the state agency says it is, basing its claim on the extrapolation of published data. Use one or more of the following heuristics-four-component model, evaluation checklist, ethics checklist, and/or five P's-to help you address this situation.

Problem adapted from *Chemical Engineering*, p. 40, March 2, 1987.

10.7. Jay's boss is an acknowledged expert in the field of data analysis. Jay is the leader of a group that has been charged with developing a new catalyst system. So far the group has narrowed the candidates to two possibilities: catalyst A and catalyst B.

The boss is certain that the best choice is A, but he directs that the tests be run on both catalysts "just for the record." Owing to the fact that inexperienced employees run the tests, the tests take longer than expected, and the results show that B is the preferred material. The engineers question the validity of the tests, but because of the project's timetable, there is no time to repeat the series. The boss directs Jay to work the math backward and come up with phony data to justify the choice of catalyst A-a choice that all the engineers in the group, including Jay, fully agree with. Jay writes the report.

What would you do?

A. Write the report as directed by the boss?

B. Refuse to write the report, because to do so would be unethical?

C. Write the report, but also write a memo to the boss stating that what is being done is unethical-to cover you in case you are found out?

D. Write the report as directed, but refuse to have your name on it as the author?

E. Go over your boss's head and report that you have been asked to falsify records?

F. Do something else? (If so, what?)

Use one or more of the following heuristics-the four virtues, four-component model, evaluation checklist, ethics checklist, and/or the five P's-to help you analyze each of these options.

Problem adapted from *Chemical Engineering*, p. 132, September 1980.

10.8. In Exercise 10.7, Jay decided to write the report to suit his boss, and the company went ahead with an ambitious commercialization program for catalyst A. Jay has been put in charge of the pilot plant where development work is being done on the project. To allay his doubts, he personally runs some clandestine tests on the two catalysts. To his astonishment and dismay, the tests determine that while catalyst A works better under most conditions (as everyone expected), at the operating conditions specified in the firm's process design, catalyst B is, indeed, considerably superior.

If you were Jay, what would you do?

A. Since no one knows that you've done the tests, keep quiet about the results because the process will run acceptably with catalyst A, although not nearly as well as it would run with catalyst B?

B. Tell your former boss (the catalyst expert) about the clandestine tests and let him decide what to do next?

C. Make a clean breast of the whole affair to upper management, knowing that it could get you and a number of colleagues fired or, at least, discredited professionally?

D. Do something else? (If so, what?)

TECH 331 – Technology Problem

Analysis & Design II

Homework 9

Assignment:

Choose ***one*** of the following numbered problems from our textbook, "Strategies for Creative Problem Solving": 10.3 (on page 262), 10.4 (on pages 262), or 10.7 (on page 264). For your selected problem choice, use ***these three*** methods: the Four Classical virtues, Ethics Checklist, and the Five P's to help you analyze the problem. Then write at least one paragraph (**Short Essay Format, <u>not</u> List Format**) for each of the three methods.

Formatting:

- Use black text only.
- Text size needs to be 12 point size.
- Margins on the document should be 1'' on all sides.
- The following name block should appear in the upper right of your document:

Your Name

TECH 331 –Technology Problem Analysis II

December 2, 2013

- Title of your document is "Homework 9."
- Please spell check and proofread your work.
- Please add page numbers to your document.

Content:

Opinion: When a question asks for your opinion, its answer is exactly that-***your opinion***. Feel free to use ***your own*** opinion.

Cite Examples: For this class, you may use a citation right after the answer to a question, or you may list your references at the end of the project. It is not required to have a separate reference page for this class.

Stating the Question before Answering It: While some reports require that you state the question before your answer, in ***this class*** it is not required to do this.

Saving/Naming Your File:

When you save your file, make sure that your name and the project number are included in it.

Example: YourName331HW9

Due Date: December 2, 2013.