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FOR ENGINEERING AND SCIENCE

# Hazardous Materials

## Year

1999

## Description

This case discusses issues of lab and worker safety as it relates to researchers and students, whistleblowing and its ramifications.

## Body

Anna and several other graduate students at State U are employed in a laboratory as research assistants to Professor Creasin while working on their theses. Professor Creasin is coming up for tenure at the end of the semester, and he is working very long hours in order to publish the results of the research projects he has done in conjunction with students. Anna considers Professor Creasin to be very intelligent and focused.

Professor Creasin's material science laboratory is involved in manufacturing and casting metals and composites. Since Anna is new to the lab, she is required to attend a day-long seminar on hazardous material handling given by Dr. D, who heads the Materials Safety and Policy Department.

During the seminar, safe uses of many chemicals are discussed, including a lead and arsenic based compound that is being used by a fellow graduate student, Dan, who did not attend the session. Dan is following several safe uses of the compound, but drilling into the solid form and heating above 400°F are specifically mentioned as unacceptable. Dr D states that drilling and heating cause particles to become airborne, which means they can be inhaled by anyone in the area. Anna knows that

Dan is drilling and heating the lead compound up in a conventional oven to about 405°F.

Immediately after leaving the seminar, Anna discusses the project and the hazardous material lectures with Professor Creasin alone in his office. At first Professor Creasin is very upset. He explains that he is aware of the situation and that 5 degrees is not a significant increase from the recommended level. Furthermore, drilling and using a temperature over the recommended limit is the only way to carry out this ground-breaking research. Professor Creasin says he does not have time to look into a small problem until after his tenure is assured. After a few moments, he calms down. He says that it would be too expensive to modify the lab and the additional expense would mean firing several graduate students, possibly Dan. He suggests that they not discuss this matter with others. Their stipend from Professor Creasin is the only income many students receive.

Upon leaving Professor Creasin's office, Anna returns to the lab where everyone is eating lunch. People store their food in a refrigerator that is located next to the conventional oven in which the lead is heated. Additionally, students are heating up frozen dinners in the oven and one student is cooking soup on the range top. When Anna asks why they are eating in a research lab, they explain that Professor Creasin is aware of this practice.

## **Discussion Questions**

What, if anything, should Anna do?

1. Tell all the graduate students in the lab about the risk of the airborne particles.
2. Explain only to Dan the health risk associated with working with the lead compound.
3. Talk to Professor Creasin again after he has cooled down and explain her concerns concretely, using the regulations described in the hazardous material seminar.
4. Call Dr. Moore and ask to speak to him privately regarding this matter, realizing that he will have the project investigated and possibly shut down.
5. Send an anonymous letter to Dr Moore.
6. Say nothing because Professor Creasin has already been informed.
7. Agree that Professor Creasin is probably correct in stating that 50 F is not much of an increase, and the drilling is irrelevant; do nothing.

8. Buy masks for herself and the other students and pass them around just because it follows regulations. Suggest they stop eating in the lab for the same reason.
9. Do more research into the lead compound's effects on health and pregnancy, as well as proposed costs and feasibility of altering the experiment.
10. Check the graduate student job board for openings in a different research lab.

## **Notes**

Brian Schrag, ed., *Research Ethics: Cases and Commentaries, Volume 3*, Bloomington, Indiana: Association for Practical and Professional Ethics, 1999.

## **Contributor(s)**

Brian Schrag

## **Editor(s)**

Brian Schrag

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