

Note to ENGI 5100 students:

Please read and be familiar with the attached script for the case **Gilbane Gold**. This case will be shown in class during the next week. Thanks.

LW, March 24, 2008.

## SCRIPT FOR GILBANE GOLD

### A Case Study in Engineering Ethics

A presentation of the  
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[David Jackson is watching TV]

**Reporter:** This week on Up Close, Z CORP, one of the area's largest employers, has been deliberately discharging toxic metals into the city sewer.

Phone Rings.

Answering Machine: Hi. This is Dave. I can't answer the phone right now. Leave a message at the beep.

**Tom Richards:** Dave, this is Tom. Look, I know you're there. Just pick up the phone, will you? Okay. I'll call you back after the program. I know you're having some second thoughts, but you did the right thing.

**TV Reporter, Maria Renato:** Welcome to Channel 13's Up Close. I'm Maria Renato. This is the Dickens Street Plant of the City of Gilbane's water treatment system. It serves the industrial section of town.

Here is where much of the city's wastewater ends up. Here is where our story begins.

Several years ago, the Dickens Street Plant was being overwhelmed with toxic metals and solvents from the city's new and thriving high tech industries. The facility could not remove the dangerous substances before they got into Gilbane's popular and profitable sludge product, "Gilbane Gold", which has been sold as a fertilizer to farmers for 75 years.

Because of the pollution problems, city legislators enacted new standards, standards that are ten times more restrictive than those of the Federal Government.

**Lloyd Bremen:** We've got an old house. My granddad built it.

**Reporter Maria Renato:** Lloyd Bremen was the State Commissioner of Environmental Protection at the time Gilbane passed its tough new laws, laws which include jail sentences for company officials guilty of polluting. Retired now, Bremen has returned to the family farm where, like his father before him, he uses Gilbane Gold.

**Lloyd Bremen:** High tech brings to mind the image of clean manufacturing plants. But this industry uses potentially dangerous chemicals. We felt it would be unfair for taxpayers to have to pay for the treatment of these industrial wastes, so that's why we helped the city write regulations requiring the companies to have to prove every month that their plants meet our specifications. We sent the message that dumping very dangerous chemicals in our precious environment would not be tolerated.

**Reporter Maria Renato:** Dr. Winslow Massin, Professor Emeritus at Hanover University's School of Engineering, suggest that as a society we have become alarmists when it comes to pollution.

**Professor Winslow Massin:** Engineering is a compromise. No product can be made both completely safe and affordable. There are always tradeoffs. If a product becomes too expensive to produce because of restrictive regulations in one city, the company will move, which means loss of jobs and tax revenues. And let's not forget that we attracted companies like Z CORP here ten years ago with tax advantages, and then saddled them with some of the strictest water pollution laws in the country.

**Reporter Maria Renato:** This is Phil Port. These pictures are about a year old. He is a manager at the Z CORP Gilbane plant. Environmental affairs are his responsibility. We interviewed Mr. Port back then for a Channel 13 news special on the explosion of high tech businesses in the Gilbane area. At that time he told us - -

**Phil Port:** We here at Z CORP hold the environment as a top priority. It's the only way I would take the job. We do business strictly by adhering to the law.

**Reporter Maria Renato:** But company documents obtained just this week by Channel 13 News revealed that one year ago at the time Mr. Port was making those statements, Z CORP was regularly discharging toxic substances into the Gilbane sewer system.

These documents allege that metals and other chemicals were being released in amounts greater than allowed by law.

Numerous attempts have been made to contact Mr. Port and two other Z CORP officials, Frank Seeders, the engineering manager, and Diane Collins, the vice president in charge of the facility. All have gone unanswered.

[Film of Meeting at Z CORP]

**Frank Seeders:** So, to make a long story short, after two weeks at full production we should be able to reduce our back orders by 40%.

**Diane Collins:** Let me get this straight. Two weeks from now 60% of the orders from last quarter will still be in the factory?

**Frank Seeders:** We're busting our tails down on that line. The fact is, despite our problems . . .

**Diane Collins:** Corporate Headquarters doesn't care about our problems, Frank. They just want it done. This is something you and I need to discuss later.

All right. Any other business?

**David Jackson:** There is one thing.

**Phil Port:** Ah, come on, David, I've got work to do.

**David Jackson:** Frank!

**Frank Seeders:** What is it, Dave? What's so important?

**David Jackson:** Well, I think any results from Frank's wastewater discharge tanks that show we're releasing arsenic and lead at higher levels than the city allows.

**Frank Seeders:** We treat that water ten different ways. Now why are you just now finding out, after what, six years, of testing without any problems?

**David Jackson:** I don't know.

**Diane Collins:** Did you know anything about this?

**Phil Port:** No, it's news to me.

**David Jackson:** I just noticed this month. That's why I brought it up. I thought someone here might know something I don't.

**Diane Collins:** David, these problems really need to be tackled first in your department. If actions are necessary, bring recommendations to these monthly meetings.

Phil, perhaps you can lend David some of your expertise. We don't need any more problems on the check line. As we all just heard, Frank has all he can handle.

Look, people, it won't take much for that product line to become unprofitable. Phil, try and manage this problem, if there is one.

All right. Meeting adjourned.

(Phil Port and David Jackson adjourn to an office)

**Phil Port:** I can't believe you, David, bringing something like that up without even warning me.

**David Jackson:** I'm sorry, Boss. But it was an engineering meeting, and I am getting higher levels from the discharge tests than ever before, levels that are consistently, if only a little, above what the city allows.

**Phil Port:** Have you factored in increased production?

**David Jackson:** These results indicate we've been releasing too much for six months. Now why hasn't the city gotten on our case?

**Phil Port:** This data is right on the line. We're probably not over the limit at all.

**David Jackson:** I need to run more tests, I guess.

**Phil Port:** We can't afford to spend a lot of time and a lot of money double checking everything. This isn't college, David. This is business.

**David Jackson:** These heavy metals are serious business. This is arsenic and lead we're talking about.

**Phil Port:** I've been doing this for 15 years and it looks okay to me.

**David Jackson:** But I'm the one that's ultimately responsible to the city, and I need to know that the data I'm signing off on is accurate. Now I suspect that at peak production we are releasing a lot more arsenic and lead than they can handle down stream.

**Phil Port:** But you don't know that. The data doesn't tell us anything about what's going on downstream.

Look, if we were causing a problem, we would have heard about it from the water people, right? It's their responsibility, you know. They tell us what they want coming out of our pipes and then it's their job.

**David Jackson:** I don't want to fight you on this Boss, but I don't like it. It's my name that goes on those reports. I'm going to have to talk to Tom Richards about this.

**Phil Port:** Fine. Talk to Richards. And if he agrees, then we'll do something about it. Just don't have it billed to Frank's department, okay?

**David Jackson:** Sure.

**Reporter Maria Renato:** No one outside of Z CORP knows more about their pollution problems than Tom Richards, an independent water treatment engineer and consultant to the company for many years. He designed and then monitored the operation of the company's water treatment systems.

Is Z CORP discharging illegal amounts of heavy metals into the sewer system?

**Tom Richards:** In my opinion, yes. Not large amounts, but definitely over the limits. We didn't know about it for years because the tests we were using didn't have adequate sensitivity. But a year ago Z CORP engineers came to me with data that they'd collected which indicated that they were discharging more arsenic and lead than the city regulations allowed.

**Reporter Maria Renato:** So Mr. Richards used a new and expensive test to measure more accurately the discharge levels. He informed Z CORP officials that changes were necessary.

**Tom Richards:** Phil Port said that Z CORP didn't need to upgrade its water treatment plant. He said that Z CORP could pass the inspections based on the less sensitive test method, a method that is specified by

the regulations. He felt that the company wasn't doing anything illegal since he hadn't been contacted by the water treatment department.

**Reporter Maria Renato:** What happened next?

**Tom Richards:** For a few months business went on as usual. Then I was fired. They said that I was too expensive and that they had staff people who could do what I was doing just as well and cheaper. In my opinion I was fired because I insisted that they spend money to improve their water treatment system.

[Scene at Z CORP with Diane Collins]

**Diane Collins:** Well, I'm sorry, Mr. Richards, but there really isn't anything more to discuss. Your arguments are well taken but we can't just keep throwing money at the problem. We have our own staff people now and your services are no longer required. Now, if you'll excuse me, I have another meeting.

[Diane Collins leaves the room]

**Phil Port:** Well, I think we all have other things to move on to.

**Tom Richards:** You guys can't be serious. You need me, Phil, and you know it. David just isn't experienced- -

**Phil Port:** Now, wait just a minute, I've- -

**Tom Richards:** You've got a serious problem here. This plant is dumping heavy metals into a water treatment system that simply can't handle them.

**Phil Port:** I don't think we are, Tom. I mean data from the test system the city requires shows we're within acceptable limits.

**Tom Richards:** The test is flawed and you know it, and you know it, too. The test isn't sensitive enough to accurately reflect the levels. And you don't have to be a Winslow Massin to see that, either.

Your name is on the document that goes to the city, so you'd better be very sure of yourself.

**Reporter Maria Renato:** Does it matter what kind of waste a company discharges into a sewer? That's what a sewer is for. However, each individual sewer system is capable of handling only certain waste products.

**Tom Richards:** Materials such as arsenic and lead are poisons and they build up in the soils and in the body over a period of time. I knew that the water treatment people were using the old tests and they might not be able to detect the change in levels. I've since pointed this out to them but they are, for a number of reasons, unable to switch to the new test now.

**Reporter Maria Renato:** This is a drying field for Gilbane Gold. Gilbane Gold is more to the City of Gilbane than a handy way to rid itself of sludge. It's a moneymaker the city has learned to rely on. The average family of four would have to pay \$300 a year more in taxes if the revenue from the sludge needed to be replaced.

Our requests for interviews with city water treatment officials have been declined. However, they have offered us this statement.

“Our legal advisors have suggested that we delay comment concerning this ongoing investigation.”

**Lloyd Bremen:** I don't know if I can really trust Gilbane Gold anymore. Up to now, the levels of metals in the sludge really haven't been very dangerous. Well, nobody knows for sure. But most likely the levels have been low enough that it really doesn't matter very much. But the heavy metals, they don't degrade. They tend to build up in the soil for decades. I wouldn't want my grandchildren or anybody's children poisoned in the future because we failed to contain the problem when we had the chance.

**Professor Winslow Massin:** I've not seen data that shows that Z CORP's discharges will contaminate the sludge. And let's not forget that the City's regulations are much stricter than the Federal Government's.

**Reporter Maria Renato:** Does that mean we should look the other way, change our limits, or not enforce the regulations?

**Professor Winslow Massin:** Of course not. But the case against Z CORP is not clear-cut. At present production levels, even if Tom Richards is correct, my research shows that it would take a hundred; perhaps two hundred years before the accumulations would cause a problem.

**Reporter Maria Renato:** And if production were to be increased two or threefold, what effect might the toxic substances have on farmers' fields?

**Professor Winslow Massin:** Well, then we might have a problem.

[Scene change]

Reporter: Channel 13's Up Close will continue.

**Phil Port:** Congratulations, Frank. I hear you pulled off quite a coupe.

**Frank Seeders:** Well, we had to fight for every nickel of it. Toko Computers and Z CORP Systems announced today a joint venture to produce control modules, and the man responsible for Z CORP's success is Frank Seeders.

**Phil Port:** Congratulations. I heard a rumor of something really big but I didn't know what it was. Are you going to double production?

**Frank Seeders:** Well, it's possible that in the next five years we could increase production five hundred percent. But our margin is so dim; the whole process is going to have to be streamlined. We're going to have to run one tight shop to make those cost projections.

**Phil Port:** That's what business is all about. David, I want to get together with you and really make this thing work. We're going to have to really pitch in, okay.

**David Jackson:** Congratulations, Frank.

**Frank Seeders:** Thanks.

**David Jackson:** We may have a serious problem here, Phil. We're going to have to invest some serious dollars into water treatment.

**Phil Port:** It's real simple, David. Just do some calculations on how much more filtration we need with increased flow so we don't pass the concentration allowed by discharge.

**David Jackson:** But we'll still be putting out a lot of poison, Phil, and you know it. A lot more than they can handle downstream. Now, why can't we just go to the city and talk to them and alert them to the situation?

**Phil Port:** If you can solve this problem without spending a lot of extra money, people are going to view you in a completely different light. This may be your opportunity to shine.

[Scene change to David's home]

[Phone answering machine]

**Phil Port:** Dave, it's Phil. I'm kind of glad you're not home because that means you're missing the hatchet job 13 is doing on us. They're making me out to be some sort of environmental rapist. I don't know where they got some of this stuff. Call me later, will you? Okay.

**Reporter Maria Renato:** And if production were to be increased two or threefold, what effect might the toxic substances have on farmers' fields?

**Professor Winslow Massin:** Well, then we might have a problem.

**Reporter Maria Renato:** The professor was prophetic. At the time of this interview last week, no one outside of a few employees knew of the landmark business arrangement between the Japanese computer giant, Toko, and the U.S. based Z CORP. Inside information released to Channel 13 estimates that production at Z CORP's Gilbane plant will increase 500 percent in the next five years and with increased production comes increased discharges of lead and arsenic.

**Tom Richards:** Right now, Z CORP is slightly over the amount allowed by the city, and that's a problem, a serious problem. But any increase in production will only make the problem worse. And there's a major loophole in the law. The laws were written to limit the amount of dangerous chemicals per discharge. Now, using rough laymen's terms, that's one ounce of lead, one ounce of arsenic in one million gallons of water. But the loophole is that as long as the concentration is not increased, they can discharge as much water as they like. Now five times as much water discharged at that concentration means ten ounces of toxic material instead of just two. So that means that new legislation needs to be written or else Z CORP or others, they can legally poison the sludge.

[Scene at Z CORP]

**Diane Collins:** You are telling me that now that the product line is starting to make money, we have to spend it on new water treatment equipment? Are we still in compliance with city regulations?

**Phil Port:** Technically, yes. But with the increased production anticipated- -

**Diane Collins:** Have we heard from the Gilbane water treatment people? No. Are we in the sludge business? No. You don't even know if the sludge will be unsafe. The problem as I see it is not with the city but with my environmental affairs department. Now, I want solutions. And that does not mean spending money we can't afford.

**David Jackson:** You just don't get it do you, Diane? We are dumping poison into the city sewer system. Now, whether the law allows it or not, that poison is going to collect in substantial amounts in the sludge, and that'll be passed on to the farmers.

**Phil Port:** Dave, I think you're overreacting. I've got to go along with Diane on this.

**Diane Collins:** Look, Dave, I eat vegetables, too. I would not intentionally poison anyone any more than you would. But you don't have the data to substantiate your concerns. We are within city regs now, and will continue to be until the City Council changes the law.

**David Jackson:** I think we have a broader responsibility to the public.

**Diane Collins:** You are exactly right. We provide this city with thousands of jobs and substantial tax base. We are in the computer business. They are in the sludge business. They can stop selling it if they think it's dangerous.

[Scene change]

**Reporter Maria Renato:** Mr. Jackson, I'd just like to ask you a couple of quick questions. It will just take a moment.

This is David Jackson, the engineer in charge of waste treatment for Z CORP. His job and its responsibilities are at the center of the controversy. The city attorney has sent Mr. Jackson a letter requesting him to meet with the city's engineers. They mean business. I quote:

"Failure to comply will necessitate an injunction against Z CORP and possible criminal charges against you personally." End quote.

**David Jackson:** No comment. Please, give me a break. Okay, off camera, all right?

**Reporter Maria Renato:** Turn it off.

**David Jackson:** Look. I haven't done anything wrong. I'm trying to get them to listen to me but the more you hound us, the more resistant they're going to be and the worse the whole thing is going to get.

**Reporter Maria Renato:** Would you speak to me off the record just to get your side of the story?

**David Jackson:** Maybe. I don't know. I've got to think about it. There are some people I've got to talk to about this. I'll call you one way or the other.

[Scene with Jackson, Richards, and Massin]

**David Jackson:** I just don't know what to do. I'm responsible to the city but I'm completely powerless to stop what's happening.

**Tom Richards:** Dave, you've got to go public with that information. That's the only way to stop it.

**David Jackson:** If I go public, I lose my job. And nobody is going to hire a whistle blower. Now if this thing goes to court and I side with the company, I'm on record as certifying data that I suspected was incorrect and I lose my license.

Winslow, what are we talking about here? Forcing Z CORP to upgrade their water treatment system, that's not going to break their back.

**Professor Winslow Massin:** Who are we to make the decision for them?

**David Jackson:** Is it the company's fault the law allows this much poison?

**Tom Richards:** The law is flawed.

**Professor Winslow Massin:** It's not our responsibility. It's the city's.

**Tom Richards:** You've got to go with your conscience on this. I mean, people might get hurt and you're going to have to live with it.

**Professor Winslow Massin:** If you go public, you'll most certainly lose your job. Tom, we go back a long way, but I don't agree with you. I don't think David should go public. Isn't there somebody above Diane you could speak to?

**David Jackson:** I wish there was.

**Professor Winslow Massin:** Suppose we send this to the engineering society and let the experts sort out the details.

**Tom Richards:** By the time they got to a decision, the damage will be done.

**David Jackson:** What was the name of that reporter?

**Tom Richards:** Renato. Maria Renato.

**Professor Winslow Massin:** You'd better give him the name of a good lawyer, too.

[Scene change]

**Reporter Maria Renato:** Z CORP's lawyers and the city attorney are now locked in negotiations in an effort to stop the pollution. But there are broader questions left unanswered. Should we lure companies to town and then pass regulations so strict that they are unable to profitably produce products? Should companies be allowed to fulfill the letter of the law while knowingly violating its principle? Have we already been poisoned?

The more we learn about the heavy metal contamination of the city's sludge, the less clear the controversy becomes. As a matter of fact, it's about as murky as the sewers themselves.

Thanks for watching. I'm Maria Renato.

[Phone rings]

**Answering Machine:** David, this is Dan Martin. We've met. I'm a lawyer at Z CORP. Diane Collins asked me to call you. She wondered if you were free to have a meeting about 9:30 tomorrow morning. Something about this television thing. Give me a call later.

Have a nice night.

**A production of Great Projects Film Company, Inc.**

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Ken Mandel & Daniel B. Polin

**Produced and Directed by**

Paul Martin

**Written by**

Paul Martin, Ken Mandel, Jim Stine

**Director of Photography**

Joe Cantu

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