# INCIDENT AT MORALES 

## FINAL SCRIPT

JANUARY 30, 2003
UP FROM BLACK.
OPENING FRAMES AND CREDITS:
FRAME 1
The National Institute for Engineering Ethics gratefully acknowledges the significant support of the National Science Foundation - Under Grant No. NSF SES-0138309
which, combined with other contributors and sponsors from engineering societies, universities, firms and individuals, made this video production possible.

## FRAME 2

## Major Financial Contributors \& Sponsors

Harry E. Bovay, Jr., P.E.
Victor O. Schinnerer and Company, Inc.
National Society of Professional Engineers
American Society of Mechanical Engineers
William J. Lhota, P.E., American Electric Power
Clint W. Murchison Chair of Free Enterprise
University of Texas at Austin
Robert L. Nichols, P.E.
Donald L. Hiatte, P.E.
Jimmy H. Smith, Ph.D., P.E.

FRAME 3
Opinions, conclusions, recommendations, or practices expressed or implied in this video do not necessarily reflect the views of the National Science Foundation or other sponsors and contributors.

## FRAME 4

This video contains some practices and events designed to stimulate discussion, and do not necessarily reflect the positions or recommendations of the

National Institute for Engineering Ethics.

The National Institute for Engineering Ethics
Murdough Center for Engineering Professionalism
College of Engineering, Texas Tech University

```
presents
```

INCIDENT AT MORALES
An Engineering Ethics Story

INT. MONTERREY, MEXICO, STATE COURTHOUSE, HALLWAY, MORNING
The wide corridors of this stately old Mexican courthouse, with their marble floors, heavy oak woodwork, and tall ceilings, are virtually empty. It's early.

## SUPER: State Courthouse, Monterrey, Nuevo Leon, Mexico

Stiff and uncomfortable benches line the long hallway. One man, FERNANDO "FRED" MARTINEZ, 33, sits alone on the bench across from an oak door. The camera dollies left.

## MEXICAN OFFICIAL (VO)

Can you state your name, please?
FRED (VO)
Yes. My name is Fred Martinez.

## MEXICAN OFFICIAL (VO)

Are you the same Fred Martinez who, as the professional engineer, signed and sealed the construction drawings for the chemical production facilities in Morales, Nuevo Leon?

FRED (VO)
Yes, that's my signature.

## MEXICAN OFFICIAL (VO)

And at the time you were employed by...

## FRED (VO)

I was employed by Phaust Chemicals which was, is a division of the French company Chemistre.

SCENE 2
DISSOLVE TO:
EXT. PHAUST CHEMICALS, EXECUTIVE OFFICES, AFTERNOON INT. PHAUST CHEMICALS, EXECUTIVE OFFICES, AFTERNOON

A polished secretary, MARY, 26, walks through the plush and quiet offices. She is holding plane tickets and a folder of documents.

## (SUPER, LOWER-THIRD: Three Years Earlier...PHAUST CHEMICALS, Dallas, Texas

Mary opens the door to an office and enters.
INT. PHAUST, CHUCK'S OFFICE, AFTERNOON
CHUCK, 55, the head of engineering is hunched over his round table pouring through a voluminous document. DOMINIQUE, 40, is on the phone speaking French and listening. Mary hands the papers to Chuck and whispers so as not to disturb Dominique's conversation.

Chuck whispers thanks. As Mary leaves, she waves good-bye to Dominique.
DOMINIQUE (in French)
Yes, yes, yes. Their decision is final. So, we build the plant in Mexico. I'll see you Monday. Chuck has it all under control here. Goodbye.

Dominique hangs up.

## DOMINIQUE

They are very pleased with your preliminary report.
Dominique sits at the round table with Chuck.
DOMINIQUE
(collecting her thoughts)
They are on-board with the budget for the Plant site. They want us to find a use for the old plant site in Allentown, but that will have to wait.

## CHUCK

I don't think we're going to get approval from Allentown Dominique. I mean, the cost of refitting Allentown versus building from scratch in Mexico. The money was about the same.

## DOMINIQUE

They were hoping you could do it for less in Mexico, but they are okay with the budget, for now.

## CHUCK

For now.

## DOMINIQUE

We may need to expedite a schedule depending on where ChemiToil is at with their new product.

## CHUCK

I've got news on that.

## DOMINIQUE

Oh, yes?

## CHUCK

That's okay. You finish. Then I'll tell you.

## DOMINIQUE

That's all really. What have you heard?

## CHUCK

Wally interviewed about, it must've been twenty candidates for the plant automation design engineer post. We're looking for a PE and someone with a wide-range of skills.

## DOMINIQUE

Yeah.

## CHUCK

Well, the last one was a real winner. Now, that we got this budget approved, we need to offer this guy a contract.

## DOMINIQUE

What does that have to do with the new Chemitoil product?

## CHUCK

He was a design engineer for a consulting company.

## DOMINIQUE

His client was ChemiToil?

## CHUCK

He designed their plant. He designed exactly what we need to build.
DOMINIQUE
Oh, but is that... ethical?

## CHUCK

He came to us. The lawyers say he has no contract as a free-lancer. He's has no non-compete clause. He's got no restrictions.

## DOMINIQUE

Sometimes it's better not to know too much.

## CHUCK

Well, I don't want to put you in a bind or anything. But, do you want to know what he said?

## DOMINIQUE

The lawyers have reviewed his situation?

## CHUCK

Yes.

## DOMINIQUE

Tell me.

## CHUCK

ChemiToil wants their plant up and running in six months.

## DOMINIQUE

Six months!
CHUCK (In French)
Yes.
SCENE 3
INT. MEXICAN COURTHOUSE, HALLWAY, MID-MORNING
The hallway is virtually empty. Fred is sitting, by himself, waiting patiently for something to happen.

## MEXICAN OFFICIAL (VO)

What was it that your plant would produce?
FRED (VO)
A new formulation of a paint stripper. Phaust is an industry leader in chemical paint and varnish removal but they needed to take their most profitable product, Old Stripper, off the market in the U.S. because it contained chlorinated compounds.

SCENE 4
DISSOLVE TO:
INT. PHAUST HDQRTRS, OFFICES, DAY
WALLY, 42, walks Fred through office on their way to the engineering department.

## WALLY

The executive washrooms are down this way, but you'll use the ones closer to us.
They walk up some stairs. Fred looks around at all the vacant area.

## FRED

Hey, what's up with the empty desks Wally, some kind of a recent contraction?

## WALLY

Yeah, contraction. This all used to be all operations, but Chemistre moved that function and accounting to France last year. They left some of R\&D, all of North American Sales and Marketing, Legal, and well, for now, Engineering.

They walk further up the stairs, into a more populated-area of the offices.
WALLY: WE SET YOU UP DOWN HERE.
They enter Wally's small cubicle.
SCENE 4A
INT. FRED'S CUBICLE, DAY
The men step into the barren cubicle. Fred sits down at his desk.

## WALLY

This is where we expect you to spend eighty hours a week making our unrealistic goal of getting a brand new plant for a brand new product up and running in less than a year a reality.

## FRED

Thanks. Your honesty really inspires me.

## WALLY

Well, let me be more honest Fred. I have one rule. It's that you need to tell me things first, not anybody else. I don't care if it's good news, bad news, or no news. I just need to know that I'm not going to be blind-sided here okay.
FRED: YEAH, SURE.

## WALLY

Good. Chuck is going to have a project kick-off meeting this afternoon. Your plant design will be on the agenda. It'll be at three. We don't waste time around here. We're fast at Phaust. Corporate tag line.
As Fred gazes around his new work-station, smiling, Wally starts routing through a filing cabinet. He finds the preliminary plant plans and hands them to Fred.

## WALLY

You might want to look at this.
(hopeful)
Tell me if this is like what you were building at your last job.

## INT. ENGINEERING DEPARTMENT, CONFERENCE ROOM, AFTERNOON

Fred, jacket off but tie still tight, is the first person at the meeting table. Sleeves rolled up. Pad and pen neatly in front of him.

At the end of the table sits a laptop computer and an LCD projector already on.
Wally, eating cookies, is the next person to enter.
WALLY
Hey, partner. Ya ready?
He sits by Fred.
FRED
As much as you can be after two hours of reading those preliminary reports.

## WALLY

And, what did you think?
FRED
Well, they were kind of... unfocused.
WALLY
I'm not asking ya for a writing critique. I want to know what you think about the process.
FRED
Oh... yeah, they were pretty straightforward.
WALLY
And, is it like what you were working on, with Chemitoil?
FRED
Similar. Nothing that hasn't, you know, really been done before.

## WALLY

People might want to know, whether we're starting from scratch or...
(finding the right words)
Or if your experience is going to help us get ahead. Some optimism.

## FRED

Oh, I don't know, Wally, every system is different. Designed to do different things differently. They're just not off the shelf.
(embarrassed)
You didn't write the prelimin...
Chuck enters the conference room.
WALLY
Nope. Chuck did.

## CHUCK

(with cake in his mouth)
Chuck did what?

## WALLY

Fred here was just giving me a critique of your preliminary report.
Chuck goes to sit at the far end of the table, up by the computer.

## CHUCK

You read that that report over very carefully. Wally and I put a lot of blood, sweat, and time into thinking that one through. Got the Frenchmen's approval...

Others begin to enter the room.
WALLY
.....and it's in your hands now.

## CHUCK

Okay, Fred Martinez everyone. We brought him on board to design the new automated plant.
The others in suits take their seats around the conference table.

## WALLY

The rumors that Fred traded Chemitoil's formula for this job are not true. That would be unethical. He was the best engineer for the job.

## CHUCK

So, with the last pieces of the puzzle in place, we thought it would be a good time to get everyone together... make sure we're all on the same page here. This is not sales, it's not about marketing, it's not about R\&D, it's not about engineering... its about all of us working together like a team. Hal tell us where the market is at.

Wally leans in near Fred while Hal gets settled at the computer for his Powerpoint presentation.

## WALLY

(whispering)
He's not one of us. He's from product development and market research.
Hal advances to a slide with a bar graph on market share.

## HAL

ChemiToil is on the verge -- probably within the year -- of releasing EasyStrip. It's a non-toxic paint remover that our market research says will carve out a twenty-five percent share in its first eighteen months. There are a lot of other competitors out there, but this one; this one is poised to make a dent. Old Stripper is a lame duck product. If we want to preserve our franchise we need a home run product.

## CHUCK

(turns to Jen)
Okay, we've got a formula we're happy with, right?

## JEN

(hard look at Hal)
See for yourself.
Jen advances a PowerPoint slide of a molecular compound.
JEN
(to the slide)
Our new non-toxic formulation. Safer. Not a fire hazard. No known carcinogens. No landfill disposal issues. Raw materials are cheap. Minimal safety risk to the user - goggles, gloves, the usual. It's a mild to moderate skin irritant.

HAL

## (voice of concern)

It could work better. It is going to be compared to Old Stripper. And while consumers will accept a little less effectiveness in return for a safer product... The better it works, the more market share we can retain. It's that simple.

## CHUCK

I'd like to do a head-to-head with ChemiToil. Sales has a shelf commitment from every major home-retail outlet.

HAL
We've completed our focus tests and we're in the process of finalizing our brand's qualities.
WALLY
He's so full of it...
(whispering, instigating)
You got a name yet, Hal?
Chuck and Hal look at each other to see who should answer.

## CHUCK

Yeah. We did. Right up until this morning.

## HAL

(unveiling)
StripTeasy.
JEN
Oh, please.
HAL
(confidant)
Research said this was a great way to retain brand recognition and ensure customer loyalty.

## CHUCK

But it's back to the drawing board on that one. The lawyers say that's a no go.
JEN
Good.

## CHUCK

It seems that the name is already in use by another product.
WALLY
Another paint stripper?
HAL
A depilatory.
WALLY
A what?
FRED
It's a hair remover.
HAL
Lawyers are afraid that people will get our products confused and they'll use ours on their legs.
GROUP
Oooh.

## CHUCK

Hey guys, let's let Hal worry about that...
WALLY
Ya know, New Stripper. I like New Stripper, out with the Old Stripper.
They talk over each other.
HAL
(acerbic)
I'll put it on our short list.
SOMEBODY
I like PowerStrip.

## CHUCK

Hey guys, let's let Hal worry about the name, we need to figure out how to make it and FAST! Fred innocently smiles. All the eyes in the room focus on him. His smile disappears.

The hallway is empty. Fred is standing, looking at a painting in the hallway and waiting patiently for something to happen. MARIA, 33, his wife comes around a corner, with a big briefcase, and surprises him.

## MARIA

Неу.
FRED
Неу.
They kiss and take each other's hands.
MARIA
Are you done?
FRED
Hasn't even started. He just got back from a last-minute meeting at the commerce secretary's office.

I think they know I'm here.
They keep holding hands and sit together on the bench.

## MEXICAN OFFICIAL (VO)

We've learned from our investigations into industrial accidents, that many companies rush the planning process. Was that the case at Phaust?

## FRED (VO)

No, no. I don't believe so, inspector.

## MEXICAN OFFICIAL (VO)

How would you describe the decision-making process, then?

## FRED (VO)

Dynamic. We were reacting to market pressures. We were on a tight schedule. We were not fully confident in our product's formulation. But I felt our decision-making process was thorough, reasoned and thoughtful.

Fred and his wife remain waiting on the bench.

INT. CHUCK'S OFFICE, DAY
Fred joins the meeting in progress. By the looks on Wally's and Chuck's faces, they are contemplating bad news.

Wally is looking at a stack of spreadsheets on Chuck's desk while Chuck works on a spreadsheet on his computer screen.
FRED
What happened?
WALLY
Seems that our French colleagues are doing some expansion through acquisition.

## CHUCK

They've slashed budgets $20 \%$ company-wide to build up a war chest.
FRED
Well, that's going to put a crimp in things. We're going to have to put the plant on hold, I guess.

## CHUCK

(scoffing)
I don't think so.
FRED
Well, how can I build this plant for 20\% less than budgeted? That's a mortal wound.
WALLY
Fred, relax, we'll save your plant. Just sit back and watch the master work. Chuck is a genius at this.

## CHUCK

(focused on screen)
Let's see. In the last forecast, we were running about twelve percent below budget...
Chuck starts to work with the numbers and, in the silence, Fred leans over to Wally.
FRED
This kind of thing happen often?
WALLY
What kind of thing?
FRED
Edicts from on-high.

## WALLY

Well, yeah and no.

## FRED

Well, how can you plan for anything when budgets are slashed and schedules cranked up? Chuck joins in as he works on the calculations.

## CHUCK

You do the best you can. Sometimes you inflate budgets and sometimes you build schedules with slack. That way if something unexpected occurs, you're covered.
(scanning numbers)
We were running ten to twelve percent under budget due to the dollar versus the peso, the lower than anticipated acquisition cost for the site in Mexico, and the savings on the waste water treatment and the other environmental controls, that's opposed to what we budgeted for Allentown.

Fred looks around worried.

## CHUCK

Fred, you'll have to cut costs on basic components. Have purchasing help find you some more Mexican suppliers. There's no need to buy American if the French want to save money. Use locals when you can.

WALLY
How do you say, "cheaper" in Spanish?

## CHUCK

And let's think about shrinking the size of the plant by making smaller batches. If we can cut plant size by ten, fifteen, twenty percent, we can save some real money there.

## FRED

But then manufacturing's unit cost will go up.

## CHUCK

## (laughing a little)

That's an easy call for us to make, especially now. The French want to save money now. Let operations pick up the cost when we hand it over.

Chuck gives a sinking Fred an uncomforting pat on the back.

## INTERMISSION: Pause for Discussion

DISSOLVE TO:
INT. FRED'S CUBICLE, AFTERNOON
The office is dark and empty except for Fred's cubicle. Fred is pouring over printouts and blueprints. Wally, dressed down with no tie, knocks on the wall before poking his head in. Fred's surprised reaction startles Wally.

WALLY
Yo, kid. Go home.
FRED
Maria is out of town. I just thought I'd catch up. What are you doing here?
WALLY
I forgot the digital camera. I'm on my way to Morales for a site visit.

## FRED

Maybe I'll see you at the airport tomorrow.

## WALLY

Why? Where are you going? Oh, a plant tour. You're going to like Pete. There isn't anything he doesn't know about building a chemical plant. He's built all of ours.

## FRED

Hey, since I got you here, can I ask you a couple of questions.
Fred goes searching for a printout.
WALLY
Yeah, just make it quick. I've got the family in the car.
Fred finds what he was looking for.
FRED
Yeah, grab a seat. About the new pipe vendor...
WALLY
Oh, excellent work on that...
FRED
It was purchasing who discovered them. Does somebody from engineering normally do a site inspection of the plant the first time we use a new vendor?

## WALLY

Uh, no. I mean... maybe. I guess we should, huh?
FRED
Probably should. First-time supplier. The pipe and the couplings and gasket flanges are going to be under a lot stress with all the heating and cooling. I'd like to know that they meet specs before we send them to the construction site.

## WALLY

Okay, where's the plant?
FRED
A little town outside Mexico City.
WALLY
That's not convenient. Um, no. Let's push that off.

## FRED

That won't give us a lot of time if we need to correct the problem, or even find another vendor.

## WALLY

This is when this job gets fun; I mean, when the pressure's really on and the people start to feel the heat. Anybody can build these things with enough time and money. Next question.

FRED
In the original specs, all the control system modules were Lutz and Lutz.

WALLY
Easy one. We've used L\&L as long as I can remember; that way we know everything works together.

FRED
But we're starting from scratch here.
WALLY
Well, there is still something to be said for familiarity within the organization.
Fred goes looking for a budget spreadsheet while Wally is looking antsy.
FRED
Look, they're so expensive.
WALLY
They're made in Germany.

## FRED

Switzerland.
WALLY
What?
FRED
They are made in Switzerland.
WALLY
Okay, Switzerland. But it’s not like other foreign products.
(mentoring)
Look, kid, pick your fights when you can win them. This one you're not going to win.
(confidential)
Chuck's brother-in-law is the US rep for L\&L.
(clarifying)
I'm not saying there are any shenanigans. It's not like it's a sweetheart deal. I'm saying Bert, the brother-in-law, gives us great prices and backs it up with solid support. And then you have the long-standing relationship...

FRED
So, pick my fights when I can win them.
WALLY
Exactly.

SCENE 9
INT. CHEMICAL PLANT, DAY
Fred, in a hard hat and goggles, is being toured around a large LOUD chemical production facility.

## (SUPER, LOWER-THIRD: SuisseChem Manufacturing... Big Spring, Texas)

PETER CLANCEY, 48, the project manager for the construction company building the Phaust plant and JAKE SPENCER, 55, the manager of the plant, lead a gaping Fred through the plant.

JAKE
So Fred, where'd you work before?
FRED
Oh, a couple of different places. But for the last couple of years, before we moved, I'd been working for an old professor's consulting company.

PETER
Fred's the guy, well, you've heard the story, who Phaust hired who'd been working on the ChemiToil plant.

JAKE
Oh, so you're that guy. Yeah, I had heard that story.
Fred is a little embarrassed.
JAKE
A friend of mine works at ChemiToil. Says all hell broke loose when you jumped ship. Heard you got a sweet deal too.

FRED
No, no. I didn't... I didn't have a non-disclosure on that project. I needed the job and Phaust knew...

JAKE
We're only as valuable as our experience. You gotta do what you gotta do.
PETER
Well, I'm glad we finally got you over for a tour. Ya know, your plant is going to run a lot like Jake's here.

FRED
(to Jake)
It's quite a complex you've got going.
JAKE
These guys do good work. They build 'em like you spec 'em.
FRED
How long did it take you to build this?
JAKE
Once we got Peter and his group involved, about fourteen months.
FRED

My plant is a lot smaller. And we are on an accelerated schedule.

## PETER

But you still have to take time to plan it right. Now, when we built this plant, we had to use highpressure alloy for all the pipes running to and from the mixing vessels.

FRED
Have you had any problems?
JAKE
Not one. Not a drip, not a leak, not a run. Open and shut.
FRED
I can't afford alloys. Not on my project. Not with these budget cuts.
JAKE
You can't afford not to. You have a blow out and you've got a thousand gallons of super heated corrosive sludge spewing everywhere. It'd take a miracle not to kill an operator. And you're shut down.

## PETER

Jake's probably got an opinion that you don't hear much. You see here, Operations takes a handson role in designing construction. At Phaust, you're be making a lot of decisions for the operations group back in France.

JAKE
The people you're building it for want something that works reliably with a minimum of down time. Now, it might cost a little more up front, but the company reaps the benefits year after year after year.
Fred takes an admiring last look around the plant.

SCENE 9A

## INT. CHEMICAL PLANT, RELAY ROOM, DAY

They look around in a room with new electronics. Fred is drawn to the panel of L\&L switches and relays.

FRED
This must of cost a pretty penny.
JAKE
This is just our relay room. If you like this, I'll show you the control room later
FRED
What do you think about the L\&L switches and controls?
JAKE
They're beautifully made.
PETER
They're the best. Elegant software too.

## FRED

They are so expensive. I mean, there are parts that do the same thing for ten bucks.
JAKE
The lower cost controls are not an option for us. We're a Swiss-owned-company. The Swiss make it; we use it.

## PETER

These expensive controls are worth the money when you get into high temperature and highpressure situations. Those cheaper sensors and valves are nowhere near as reliable. And the software, well that cheap stuff is about as buggy as a New York City basement.

SCENE 9B
EXT. CHEMICAL PLANT, DAY
The men climb metal stairs up to a deck overlooking the water treatment tanks.
JAKE
And, this is our three million dollar monument to the U.S. EPA.
Jake presses his thumb into his palm.
JAKE
They had us under their thumb. It would have been five million if they had their way.

## FRED

My wife works for the EPA.
JAKE
Oh really, what does she do?
FRED
She's a compliance litigator.

## JAKE

So, what are your wastewater requirements in Mexico?
Fred looks almost embarrassed.

## FRED

Well, right now, we have two three hundred thousand gallon "evaporation ponds" spec'd. We'll be putting out about a thousand gallons of a corrosive effluent into one pond and a thousand gallons of back wash water into another.

## PETER

(shaking his head)
That's amazing. Sure is different a couple hundred miles away.
JAKE
Hey, I don't waste any love on environmentalists, but can you say, "environmental catastrophe" in Spanish?

## INT. FRED'S HOME, LIVING ROOM, NIGHT

A basketball game is on the television. While Fred's attention is strictly on the game, he has piles of paperwork stacked on the coffee table in front of him. Maria, his wife, is also on the couch, but her attention is focused on her laptop.
The game goes to a commercial allowing Fred a moment to look at the document in his hand.

## FRED

The by-products are a stew of nasty stuff - you got heavy metals, toxic compounds.
She stops typing.

## MARIA

Do you have to work with that?

## FRED

Me? No, no. That's just what will come out of the plant when it's up and running.
MARIA
Well, how will they treat it?
FRED
No, no, no. You're a little out of your jurisdiction, don't ya think, counselor? The plant is in Mexico.

She puts down here laptop and twists around on the couch.
MARIA
Sounds to me like someone has something to hide.
FRED
No, we don't. We're following the regulations.
Fred holds his papers just outside her reach as she playfully snatches for them.
FRED
Hey, you're gonna need a subpena to get a look at these, okay.

## MARIA

Okay.
She plants a big seductive smooch on him, while at the same time plucking the papers from his grip.

## MARIA

Consider yourself served.
(flipping thru the papers)
I'm going to guess, the regulations call for big unlined evaporation ponds...
Reaching over her to get the papers back.
FRED
Oh, I should have never said anything.
They get face to face.

## MARIA

Where all the toxic waste will leech into the ground water.
FRED
Really. We shouldn't be talking about this. Seriously.
MARIA
Honey, do you know where the locals get their water?
FRED
Do you know how frustrating it is to be a chemical engineer who's married to an environmentalist?

She pushes him off the couch and they both tumble off camera.

## MARIA

Fred, promise me you'll line the ponds.

## INTERMISSION: pause for discussion...

SCENE 12
INT. PHAUST OFFICES, LIBRARY, NIGHT
Fred sits at a big table and has a binder and many bound books open in front of him. A binder is labeled Phaust Policy Manual. Chuck appears at the door.

## CHUCK

Night, Fred.
Startled, Fred tries to conceal the nature of the books.

## FRED

Oh. Ah, hey.

## CHUCK

You working on something?
FRED
Oh, ah just a couple of regulations, I wanted to double check.

## CHUCK

A lot of details when you build a plant, huh?
FRED
Yeah, an astounding number to keep straight.
Chuck twists the ethics manual around.

## CHUCK

Fred, are you struggling with your conscience over something?
FRED
Uh, no. No, not really. Just thinking about what is expected of me.

## CHUCK

It's not just you, Fred, it's us. It's all of us. It's what's expected of all of us. You don't have to take responsibility by yourself.

Chuck puts down his briefcase and sits in front of the books.

## CHUCK

So tell me. What's your concern?
Fred doesn't know what to say.

## CHUCK

## Concerns?

## FRED

Well, primarily it is an environmental one...

## CHUCK

Well, that's Larry's department. Let's call Larry. He'll take care of it.
FRED
I wanted to be prepared, to understand the implications.

## CHUCK

That's fair.

## FRED

The wastewater and the process by-products are toxic and dangerous. And the local government regulations are...

## CHUCK

Are what? Too restrictive? Too Vague? What?
FRED
Clearly inadequate. Sir, we have to be careful not to poison people.
Chuck leans in and looks directly into Fred's eyes.

## CHUCK

Absolutely. Absolutely. Now I am going to set up a meeting with you and Larry and Wally and we'll discuss this and we will find a sensible solution.

## FRED

Alright. Thank you sir. Thank you.

## CHUCK

Okay.
Nodding, Chuck gets up out of his seat and starts walking towards the door. On his way, he pats Fred on the back.

## CHUCK

Good man.
Fred is pleased and relieved.

SCENE 13
INT. FRED'S CUBICLE, MORNING
First thing in the morning, Fred enters his cubicle to find a Post-it note on his computer screen. It reads: See Me!

INT. WALLY'S OFFICE, MORNING
Fred knocks at the door. Wally, at his computer, speaks without turning around.
WALLY
Come in. Shut the door.
Fred starts to sit. Wally spins around.
WALLY
Don't sit. What is my one rule?
FRED
Tell you before I tell...
WALLY
So why am I being asked to bring you to a meeting with Chuck and Larry, the environmental guy? Why is this a surprise to me?

FRED
Last night, Chuck caught me in the library looking over some ethics manuals. We got talking and

## WALLY

And this crisis of conscience is concerning what?
FRED
The effluents and by-products ... the "evaporation" ponds.
WALLY
You are aware that the costs related to environmental controls are perhaps the largest single costs saving as compared to building this plant in the States?

FRED
Yes, but...
WALLY
And you are aware that a directive was handed down by which we're supposed to cut cost twenty percent.

FRED
Yes.
WALLY
Kid, this is a business. The heart and soul of a business is to turn a profit. When a business turns a profit, it can share that wealth with its employees in the form of bonuses. And this company's bonuses are based on performance. That's why you have a boss. I'm here to make sure that you don't mess things up by bringing people that are three stages removed from what's going on and screw it up.

Wally dismisses him and Fred heads to the door.
WALLY
The meeting is at four.
Fred walks out of the office.

SCENE 14
DISSOLVE TO:

## INT. MEXICAN PROVINCIAL COURTHOUSE, HALLWAY, NOON

The hallway is still empty. Fred and Maria sit patiently hand in hand.

## MEXICAN OFFICIAL (VO)

Most environmental regulations here are similar to your own. Do you believe you gave these regulations enough attention?

FRED (VO)
Oh, I gave it quite a bit of attention.
MEXICAN OFFICIAL (VO)
I'm an engineer myself. And one question intrigues me. Can you look back and define the moment when the wrong path was taken, when the mistake was made.

FRED (VO)
Believe me, I've thought about that quite a bit.

SCENE 15
INT. CAFETERIA, MORNING
Peter and Fred share a cup of coffee in the cafeteria.

## PETER

Good move on getting people to agree to line those ponds.
FRED
Wasn't just me. Once the environmental guy saw the situation, he was right on it.

## PETER

A lot of companies would have let it slide.
FRED
Yeah. Well, Wally wasn't too enthusiastic.

## WALLY

I'll bet he wasn't.
FRED
What do we need to do about the pipe vendor?

## PETER

Well, the pipes are okay. They meet all the QC specs.
Peter lifts a steel pipe fitting on this tray.
PETER
It's these flanges and couplings that worry me. They are barely meeting specs on the fatigue and brittleness test.

FRED
(minimizing the risk)
It's not like we're taxing them with high pressures and high temperatures for extended times.

## PETER

(look at it another way)
No. But there is a lot of cycling. Heating. Cooling. Heating. Cooling. Now I'm going to have to study this, before I can sign off. You may have to use a stainless or a high-pressure alloy for these parts.

FRED
No. I can't afford that. There are too many of them. And we don't have the time. The issue really is how long they last not whether they are up to temperatures and pressures, right?

PETER
Yeah.
FRED
Let's make it a maintenance issue, an operational responsibility. The couplings and flanges are cheap and they shouldn't be too hard to replace.

PETER
I don't know Fred. Every time you add another reason to take a plant out of service or extend the maintenance schedule it costs the company money...

FRED
I understand that, Pete. But that may be a trade-off we have to make. The French want to save money now. Operations will just have to deal with it when we sign it over.

SCENE 16A
DISSOLVE TO:

## INT. MEXICAN PROVINCIAL COURTHOUSE, AFTERNOON

The courthouse is busier as Fred and Maria still wait patiently on the bench.

## MEXICAN OFFICIAL (VO)

One factor seems to surface with some regularity in these interviews. The process becomes overly reactive to the commercial challenges. Was there a time when issues in the market place took an overriding control? Did something like that occur here?

## FRED (VO)

No, no. I don't believe so inspector.

INT. PHAUST OFFICES, HALLWAY, AFTERNOON
Fred falls into lockstep behind Wally. They're headed for the elevator.
FRED
I can't believe that, what are you getting?

## WALLY

In Kalamazoo. He was visiting his in-laws and helping them paint their house. It was on the shelf in the paint store in a display.

SCENE 16B
Chuck, Hal, and Dominique are already waiting for the elevator when Fred and Wally arrive.
HAL
Probably some test marketing promotion ChemiToil is running.
WALLY
Dominique, I didn't know you were in town.

## DOMINIQUE

I was in New York. And when Chuck called to tell me the news, yesterday, I simply had to come by to see for myself, with my own eyes.

## CHUCK

Dominique, this is Fred Martinez. Fred is our new automated process engineer.

## DOMINIQUE

Oh, the ChemiToil guy. I've heard many good things about you.
They shake.
FRED
Nice to meet you, ma’am.

## DOMINIQUE

Good work on identifying those less expensive controls, Fred. I saw that in the numbers that Chuck was showing me this morning.

Wally and Chuck shoot each other glances that Fred notices but Dominique doesn't.
FRED
Well thank you.

## DOMINIQUE

What's the downside to these controls, Chuck? Why have we never spec'd them before?

## CHUCK

I don't know. Fred, must be something they don't do as well?
The elevator arrives. With everyone getting on and off, Fred is left, pretty much, talking to himself.

## FRED

Really, it's range. The sensors are very accurate and the valve gates are very reliable as long as the emulsion stays below three hundred and fifty degrees and two hundred PSI. Ah, we've got plenty of overhead.

Fred climbs on last and the doors close.

SCENE 17
INT. PHAUST, R\&D CONFERENCE ROOM, MORNING
With a palpable sense of expectation, the group enters the a basement conference room. Jen, with a dour look, greets everyone.

JEN
Good morning.
GROUP
Good morning.
Jen presents the Easy Strip can to the group.
JEN
The competition: EasyStrip.

## GROUP

Oooh!!!

## DOMINIQUE

That's cute, but how does it work?
JEN
See for yourself.
Jen moves around to a bench behind her to show everyone. On the bench are three pieces of the old molding.

JEN
We followed the directions on each exactly, applied one coat. We compared them on the exact same old piece of mantle I'd been saving for this test.

Each piece of mantle is labeled with a tent card with the name of the product. From left to right: Old Stripper, New Stripper, EasyStrip. Old Stripper did a good job. New Stripper left some paint and a milky residue, but EasyStrip brought it right down to the wood.

DISSOLVE TO:
INT. PHAUST OFFICES, R\&D CONFERENCE ROOM, EVENING
The key team members sit dour-faced around the conference table. Dominique is notably absent. Empty coffee cups sit intermingled with the three different examples of stripped mantle. Wally admires the EasyStrip can.

WALLY
This is a killer applicator. No mess, no fuss. We need something that is this sweet...
Hal slides the EasyStrip piece of molding to Jen.
HAL
First, we need something that works this good.

## CHUCK

(to Jen)
We need to find out what's in this and how they make it. When can you get that for me?
JEN
How much do you have?

## CHUCK

That can, one other.
JEN
I'll need more. As much as you can get.

## CHUCK

Well, let's get someone down to Kalamazoo, and buy all he can.
JEN
I can tell you now what they've probably done. They're probably using a more volatile solvent. That means higher temps and higher pressure in the mixing stage.

FRED
How much higher?
JEN
At least double.
CHUCK
Double?
WALLY
Double?
Everyone in the room looks to Fred.
FRED
Double.

EXT. MEXICAN CHEMICAL PLANT, MORNING
Wally hops out of a truck and heads toward the plant door. Fred greets him with a broad smile.
(SUPER, LOWER-THIRD: Three months later... Phaust Plant, Morales Nuevo Leon, Mexico)

FRED
Good to see you.
WALLY
Hey, nice place you've got here.
FRED
Not much of a neighborhood unless you like rattlesnakes and scorpions, but yeah we like it.
WALLY
Pete's crew did a nice job.
FRED
He had an excellent plan to work from.

## WALLY

Now, we just got to make it work.
They take a walk around.

SCENE 19A
EXT. MEXICAN CHEMICAL PLANT, AFTERNOON

## FRED

I think I've got the problem isolated and a solution identified, but I want you to see for yourself.
WALLY
Good. Chuck just got back from France breathing fire. They're on him about the delay and loosing market share to Chemitoil.

FRED
Manuel, the plant manager, is going to meet us in the lab.
WALLY
Oh good. Let's go.
Fred and Wally keep walking.

SCENE 19B

## INT. MEXICAN CHEMICAL PLANT, LAB, AFTERNOON

Manuel with gloves pours a clear thick liquid from a beaker onto a piece of wood.
MANUEL
This is what it should be like. Right consistency and perfect formulation.
He picks up another beaker. This time the liquid is so thick it barely pours onto the wood.

## MANUEL

Too thick.
FRED
And this formulation is very weak. It barely takes dust off much less any paint.
Manuel picks up a third beaker and pours a thin liquid out.
FRED
This is too thin but highly caustic. It would burn a hole in the board. There is no consistency in the final product.

WALLY
So Goldilocks. Too thin, too thick, just right. What's causing it guys?

## MANUEL

Well, I think, in the mixing chamber, there is very little room for error.

## FRED

And the formula in the mixing chamber needs to be a certain temperature and pressure, four fifty and three hundred PSI. Too much heat, too much pressure and it comes out thick and weak.

## WALLY

And that's a function of...
FRED
Look, I spent three weeks trying to find a bug in the software and then I realized...
(swallows hard)
It's a function of the controls and sensors. The temperatures and pressures are at the far end of their range as far as accuracy.

## WALLY

The cheaper controls...
FRED
They were completely acceptable until R\&D changed the formula.
WALLY
And if we used L\&L controls we wouldn't have this problem.
FRED
No, we probably wouldn't.

## WALLY

Okay. So how do we duplicate the one that's just right?

## MANUEL

I babysat it. I monitored it from the room with the reactor vessel. I timed it on my watch. And I released it manually.

SCENE 19C
INT. MEXICAN CHEMICAL PLANT, AFTERNOON
Wally, Fred and Manuel head through the mixing chamber room on their way out of the plant. Wally takes a step closer to the mixing chamber and spots something on one of the pipes leading into the vessel.

WALLY
Hey guys, what's this?
Both Manuel and Fred take a closer look.
MANUEL
Looks like a little leakage.
Wally scrapes at it with a fingernail.
WALLY
How many batches you run through here.
MANUEL
About 30 test batches.
FRED
That could be a function of the sensors too. Letting it run at too high a pressure and too hot for too long. We knew the couplings and flanges were right on the borderline for brittleness. That's why they're scheduled for replacement at regular intervals.

WALLY
(to Manuel)
Keep an eye on this. It's way too soon. You haven't run enough batches through here to start springing leaks.

Fred says something to Manuel in Spanish.

SCENE 20

## INT. PHAUST OFFICES, CONFERENCE ROOM, AFTERNOON

The key group of engineers sit around the conference table.
WALLY
Well, this is what we're going to give to operations when we hand over the plant. Is everybody okay it?

## CHUCK

Fred's the guy who's got to put his name on it, Fred’s got to be alright with it...
Everybody looks at Fred.
FRED

Well, the couplings still leak when the pressure is up.
WALLY
And we've alerted operations and given them specific instructions on how to maintain the connections.

## CHUCK

We've got Jen working on a lower temperature formula. That may make all of this moot.
FRED
We haven't worked out the bugs on the last step of the automation...
WALLY
And next year, we'll retrofit the entire plant with L\&L controls.

## CHUCK

This is how it works. We design it. We build it, we hand it over. They run it. We've done the best we can. No plant, no process, no system is ever completely perfect.

WALLY
You built a plant that's efficient. You've got your upgrades to the wastewater treatment.
FRED
Yeah, you're right. Um, for now Manuel or one of his guys can use the manual release valve.

## CHUCK

Okay. Time to let those plant jockeys make New Stripper.

SCENE 21
DISSOLVE TO:

## INT. PHAUST OFFICES, FRED'S OFFICE, AFTERNOON

Fred is packing his personal belongings into a box. Wally comes around the corner and knocks on a wall of his cubicle.
WALLY
Search him, guards. Make sure he didn't steal any proprietary secrets.
Fred turns around to see his bosses and many of his coworkers standing by his cubicle.
FRED
Hey, how else can I get a job? Your secrets are the most valuable thing I take to any new employer.

Chuck holds out a wrapped gift.

## CHUCK

Just a little present from us to you... Actually, we don’t want your wife telling her new bosses in Washington any of our dirty little secrets.

Fred and Chuck shake hands and Chuck puts the gift on the top of Fred's box.
FRED
Thanks guys. It's been great working with you.

## WALLY

Vaya con Dios.
Fred starts walking away. He hugs people on the way out.

## SOMEBODY

(off-camera)
Chuck, the phone's for you.

## CHUCK

I'll take it in Fred's office.
He picks up the phone.
Yeah, Chuck here.

SCENE 21A
Fred is about to get on the elevator but hesitates when he hears Chuck's moan.

## CHUCK

Oh my god. No. No.
Fred steps back to see Chuck, with a phone to his ear, and Wally, listening closely, looking shocked. Wally grabs the phone from Chuck.

## WALLY

Wally here. Who was killed?
(he listens)
Manuel Ortega’s dead.
(to Fred)
Fred is stunned.
WALLY (on the phone)
Yeah. Yeah, we'll be right there.

SCENE 22
DISSOLVE TO:
INT. MEXICAN PROVINCIAL COURTHOUSE, HALLWAY, EARLY EVENING
Fred sits on the bench with his arms crossed. Maria is gone by this time. The office door finally opens and an official steps out to address Fred.

## MEXICAN OFFICIAL (in English)

Mr. Martinez, I apologize for keeping you waiting. But we bureaucrats are servants of the people. When my boss, called me this morning, I just couldn't say no. Please come in. I am very anxious to hear your side of the story concerning the incident in Morales. Won't you come in?

Fred follows the Mexican Official into his office.
FADE TO BLACK.

## CREDITS:

## A PRODUCTION OF

## Great Projects Film Company, Inc.

New York, NY

## PRODUCER

Kenneth Mandel

WRITER and DIRECTOR
Paul Martin

NIEE EXECUTIVE PRODUCERS
Jimmy H. Smith, Ph.D., P.E.
Civil Engineering, Texas Tech University Director, National Institute for Engineering Ethics

Steven P. Nichols, Ph.D. J.D., P.E. Mechanical Engineering, University of Texas at Austin

Michael C. Loui, Ph.D.
Electrical \& Computer Engineering, University of Illinois at Urbana-Champaign

Vivian Weil, Ph.D.
Director, Center for the Study of Ethics in the Professions
Illinois Institute of Technology
Philip E. Ulmer, P.E. Consulting Safety Professional, Eagle River, Alaska

Fredrick Suppe, Ph.D.
Philosophy, Texas Tech University
Carl M. Skooglund
Retired Vice President \& Ethics Director, Texas Instruments
E. Walter LeFevre, Jr., Ph.D., P.E.

Civil Engineering, University of Arkansas

SPECIAL ASSISTANTS
Dave Dorchester, P.E.
Lead Role in Development of Private Funding
Patricia Harper
NIEE Administrative Secretary and Video Production Assistant

TECHNICAL ADVISORS
Jose Novoa, P.E., Civil/Environmental Engineering, Dallas Jose Guerra, P.E., Civil/Structural Engineering, Austin Christopher Smith, Chemical Engineering, Dallas

DIRECTOR OF PHOTOGRAPHY
Joe Cantu
EDITOR
Benno Schoberth
ORIGINAL MUSIC
Hayes Greenfield
ASSOCIATE PRODUCER
Danny DeLoach
GAFFER
Tommy Alcala
LIGHTING GRIP
Nigel McGregor
SOUND
Patrick Holloway
STEADICAM OPERATOR
George Niedson
MAKE-UP ARTISIT
Shannon Knox
GRIP
Kyle Higgins
SCRIPT SUPERVISOR
Eve Butterly
PRODUCTION ASSISTANTS
Brad Rios-Doria
Sarah Mckern
Jack Cline
PRODUCTION SERVICES PROVIDED BY
Texas World Television

CAST
FRED Julio Cedillo

# WALLY Shawn Griffiths <br> CHUCK Cliff Stephens <br> DOMINIQUE Nancy Cartier <br> HAL Oliver Tull <br> JEN Sue Birch <br> JAKE Brazos McDonald <br> PETER Joe Berryman <br> MARIA Dana Jackson <br> MANUEL Lico Reyes <br> MEXICAN OFFICIAL Rene Munguia 

NIEE and Great Projects Film Company thank American Electric Power Company for the use of their use of their Dallas office and conference facilities.

And also, we thank the Brazos River Authority for the use of their facility in Granbury, Texas.

All characters in the video are fictional and any resemblance to past or present individuals, groups or entities is purely coincidental.

Permission to copy any portion of this copyrighted video must be obtained in writing from The National Institute for Engineering Ethics, Texas Tech University, Lubbock, Texas 79409-1023

Contact us at:
www.niee.org
Copyright 2003
National Institute of Engineering Ethics.
All Rights Reserved.

