All that held back the deadly gas was a pipe worn as thin as a soda can

BY MICHAEL TENNESSEN

INTO THE TOXIC CLOUD
As darkness spreads across eastern Washington State, powerful floodlights bathe the steel towers of the chemical refinery in a cool glow. Sprays of steam kiss the warm October air, dancing along metal pipes that weave through the structure like blood vessels.

Amid the maze, a carbon-steel pipe winds through the open-air reactor tower, twisting this way and that before disappearing into a condenser. Inside the pipe, hot gases are slowly cooling down on their way to becoming solid silicon, the base material for computer microchips.

But the pressurized chemicals have created a weak spot in the pipe. Silently they gnaw through the metal, millimeter by millimeter. Only the thinnest layer now prevents their escape. Any minute now, they will find a way out. Any minute ...

The sound of laughter echoes off the thick concrete walls of the Silane Control Room, where the night crew is preparing for duty. Some of the men sip sodas while others lace up boots or pull on thick coveralls. Most of the workers at Advanced Silicon Materials, Inc., in Moses Lake have clocked out, leaving these eight technicians to monitor the flow of chemicals and respond to emergencies in the Silane Unit overnight.

But work isn't the only thing on their minds. Tonight marks the end of their four-day week. Tomorrow, the men plan to go hunting together.

"So, Deme, you goin' with us?" asks Kevin Gary, the 34-year-old shift supervisor. Demetrio Garibay, 26, looks sheepishly at the floor. He's the only one who hasn't committed to the trip.

Before he can answer, Roy Long chimes in. "He's going," says Long, at 54 the old man of the bunch.

"Only he and I are going to stay by the fire and drink beer."

Deme explains his hesitation. "My wife told me if I shoot some animal and try to bring it home, she won't let me in the door. The men roar.

"That's all right," says Kevin. "We'll do the hunting. After dinner, you two can scrub dishes while Jeremy and I serenade you with country tunes." He flashes a quick grin at Jeremy Lohr, 24, a soft-spoken man with short, dark hair and an open, friendly face.

All broad-shouldered and sturdy built, the men are more than coworkers. They're good friends, often getting together in their off hours for meals or special events.

"All right, let's get down to business," says Kevin, turning the conversation from hunting to tonight's assignments. He breaks the team into smaller groups and sends them off to various parts of the complex. Jeremy, Deme, Roy and Rick Rios will work together on the six-story reactor tower, replacing valves and hanging identification tags on pipes.

Bursting Point—For years, chemicals gnawed at the pipe from inside.

"See you back here in a few hours," Kevin says, then heads off to a meeting in another section of the plant.

The seething chemicals continue to eat away at the inside of the pipe. After years of steady pressure, the heavy steel has been chewed to the thickness of a soda can. Not much longer can the fragile layer hold back the gases creeping relentlessly toward the surface.

Jeremy steps out into the warm night air. He pauses to listen to the geese honking in the distance and to double-check his equipment: splash goggles, helmet, flame-retardant coveralls, tool belt. The microphone for his radio is clipped securely to his lapel. Tucked in his belly pack is a half-mask respirator—a lightweight device that gives limited protection from harmful fumes.

His safety equipment is a daily reminder of the hazards of the job. Surging through pipes all around him is a cocktail of deadly gases—including hydrogen, silicon tetrachloride and trichlorosilane—pressurized and superheated at times to 1000 degrees. If released into the air, some of the gases react with moisture to form extremely corrosive hydrochloric acid. Water in large
amounts will eventually subdue the chemical, but small amounts of moisture, such as that on the eyes and skin, will only excite it.

Jeremy knows just how wicked the stuff can be. Sometimes when he's changing filters or cleaning pipes, loose gases scorch his nose and bring torrents of tears to his eyes. Once, he and a co-worker tried to wash away a teaspoon of the solidified material that fell out of a pipe filter. As soon as the first drops of water touched it, the tiny chunk burst into a 20-foot toxic cloud, sending both men scrambling for air.

The geese are honking noisily as Jeremy makes his way to the reactor tower and clatters up the staircase, his steel-toed boots ringing on the metal steps. He stops on the fourth floor and gets to work, paying no attention to the plain brown pipe snaking by him only yards away.

The chemicals inside the pipe are in a frenzy. They hammer at the weak spot until, at last, the deflected steel gives way. With a final thrust, they tear through the last layer of resistance, find a pinprick of daylight and in one violent instant break free.

Without warning, the pipe ruptures with a powerful, thundering blast that rips through the steel casing and knocks Jeremy off his feet. Through the jagged opening in the pipe shoots a plume of thick, angry gas, spewing out at 60 m.p.h. Jeremy backs away in horror as the pipe disgorges its contents, roaring like a jet on takeoff. Within minutes, the pipe has sprayed 30,000 pounds of deadly gas into the air.

Alarms go off all over the plant. For Jeremy, time seems to slow down as he tries to get away from the growing cloud. Glancing at the windsock on the tower, he sees that the breeze is blowing north. He decides his best hope is to make a dash for the maintenance building four stories below and 50 yards to the south.

As the air fills with the snow-like flecks of poisonous gas, Jeremy takes a deep breath and races for the staircase, barely aware of the other three men converging on the spot. Within seconds, fingers of gas squeeze past the rim of his goggles—designed for splashes, not vapors—and begin to itch his eyes with burning acid. His vision blurs instantly.

At the top of the stairs, Jeremy quickly slips on his respirator, sinking in one breath, and another. Then the respirator fails, and the gas comes pouring in. Suddenly his throat and lungs are on fire. Unable to breathe, he panics. A voice inside him says, Stay in control, don't give up. But it's no good. He needs air now!

He stands at the railing of the staircase and, squinting through the tears and the pain and the burning acid, peers downward at the blurry darkness of the asphalt 40 feet below.

He has to escape the choking gas. There's no choice. He has to jump.

In a building 100 yards away, Kevin Gary gets an emergency call on his portable radio.

“We've got a problem here!” screams one of his crew members back in the Silane Control Room.

Kevin rushes outside and looks across the plant toward the area where he'd just left his men. The entire Silane Unit is engulfed in an enormous cloud, glowing bright orange in the plant's sodium lights. The incandescent fog has already grown more than a block long and over 80 feet high. Even from this distance Kevin can hear the roar of the pipe spitting venom into the atmosphere.

God Almighty, he says to himself. That's a death cloud!

He reaches for his radio and calls to the men in the control room. “Shut the unit down!” Then, breaking into a run, he radios another unit. “Call the fire department and put out the alarm to the emergency backup squad. Tell them to get here now!”

His chest thumping, Kevin jumps in his truck and speeds toward the reactor tower. He pulls into the parking lot between the maintenance- and tech-staff buildings.

Slipping on his splash goggles, the only protective gear he has with him, he runs into the tech-staff building to find a respirator. Though his team receives emergency training every month and is equipped to deal with most gas leaks, he's never imagined a release of this magnitude.

As soon as Kevin enters the building, he realizes the place is already beginning to fill with gas. It penetrates his goggles, bringing tears to his eyes. Stinging vapors plunge down his throat and into his lungs.

He straps on a respirator and, running back outside, takes a quick mental tally of his men. He can account for two, those in the control room. Where are the others? Could they have escaped? Are they still alive?

“Jump!” says a voice inside Jeremy, standing on the fourth floor of the tower. And yet somehow through the pain and the thickening fog, he realizes jumping would mean almost certain death. Grabbing the handrail, he hurries down the stairs, coughing and bumping against the other men also running for their lives. Like them, he has lost control of his limbs and is wobbling like a drunk.

Just below him, Roy Long stops suddenly. His mike cord is tangled in the pipes. Dazed and hacking violently, he tugs on the wire, then stumbles just as Rick Rios yanks it free and helps him back on his feet.

On the last flight of steps, Deme Caribay trips and tumbles most of the way down to the hard floor. Jeremy rushes to his side. “Get up, Deme,” he says, gasping. Deme
The cloud rolls menacingly, but Kevin holds his position behind the hydrant, tears streaming from his eyes. After a few moments the fog slowly begins to pull back. With the water still flowing, Kevin barks repeatedly into his radio. "Rick, Deme, Jeremy, Roy, Mark. Are you there?" There's no answer.

Kevin then runs from one hydrant to another, chopping down chunks of cloud with cascades of water. At last, a man from another part of the plant appears outside, and Kevin rushes out to meet him. He helps the driver strap an oxygen mask over Deme's face, then turns to Jeremy.

Only now Jeremy is facedown on the floor. He has stopped moaning and is lying very still. Kevin flips him over and starts to slap his cheeks to wake him up. Already, he can see that the acid has begun to attack Jeremy's body. His normally black hair is a ghostly white, as is his clothing. A whitish film covers his eyes. Kevin knows if the acid isn't washed off soon, his friend will go blind. And if he doesn't get to a hospital soon, he may die.

"Get moving," Kevin shouts, coaxing Jeremy toward the showers in the employee locker room. "I can't!"

"Yes, you can. Now get up!" He grabs Jeremy's arm, wraps it over his shoulder and pulls him to his feet. Kevin can hear Jeremy hacking with every breath as he drags him to the locker room.

Like a man awakened from a deep sleep, Jeremy struggles to make sense of the events unfolding around him. He feels his body being tugged and pushed. Please, no, just let me sleep. In the distance, he hears a voice—Kevin's voice—echoing strangely. As

Kevin, neither man moves. He tries to lift Deme, but the injured man only curls up in a tighter ball.

Just then, an emergency van from another part of the plant appears outside, and Kevin rushes out to meet it. He helps the driver strap an oxygen mask over Deme's face, then turns to Jeremy.

"Are you there? Kevin barks into his radio. But there is no answer."

Kevin didn't move, so Jeremy reaches down, grabs the man's coveralls and drags him along behind him.

Pure adrenaline propels Jeremy forward. I don't want to die, I don't want to die, he keeps telling himself as he runs. Wobbly and nearly blind, he collides with the wall of the maintenance building and falls.

Jeremy struggles to his feet and, pulling Deme with him, stumbles into the building. He props himself against a wall and reaches for the switch on his radio. Each wheezing breath brings stabbing pain to his throat and lungs. He struggles to speak into the radio but can only mouth the words. He tries again. No sound comes out.

Kevin barks out of the tech-staff building and quickly finds an emergency hydrant. Aiming the nozzle, he turns the valve and shoots a high-pressure stream of water into the heart of the thick, swirling fog.
if in a dream he hears water running, then suddenly he feels the sting of fire as water reacts with the chemical residue on his skin. He thrashes to escape the pain and the stench and the burning acid on his tongue, but strong arms hold him fast.

By now the scene is alive with emergency activity. Workers from other parts of the plant take positions behind hydrants and begin blasting at the body of the cloud, now visibly shrinking and breaking apart under the attack. Meanwhile, paramedics and county firefighters have rounded up all the crew members and rushed them to the hospital. At last, Kevin knows where all his men are.

Now he can turn his attention to the cause of it all—the pipe. Under his direction, two workers wearing full hazardous material outfits slowly climb the stairs of the reactor tower to the fourth floor. While others train streams of water on them, the men isolate the leak and shut off the last bit of pressure in the line. Finally, only 30 minutes after it began, the nightmare is over.

Next morning, the rising sun reveals the full impact of the cloud's fury. To Kevin Gary, the plant in the aftermath of the gas leak looks like a war zone. It's also clear that, while most of the cloud had been contained at the plant, a portion of the acid fog scattered a path 25 yards wide and over a mile long into the surrounding countryside, burning crops and etching holes in windows and rooftops. Trees were scorched as if by fire from above. Miraculously, no one outside the plant was injured.

Four crew members were treated for chemical burns and chemical pneumonitis. Sadly, Demi Garibay and Roy Long died from their injuries. Jeremy Lohr and Rick Ross still suffer health effects.

Since the accident, the friendship among the crew members has only strengthened. Whenever possible, their families get together for barbecues on Kevin Gary's deck.

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**Attention Wal-Mart Shoppers!**

Imagine shopping at Wal-Mart only to be handed a jury summons at the checkout counter. That's what happened to 55 people in Shelby, N.C., when a state court ran out of prospective jurors. Sheriff's deputies were given two hours to find the needed jurors, so some shoppers had only 30 minutes to change plans and get to the courthouse. “When not enough jurors are here,” explained a deputy, “we try any possible way to get them. You go to the place most people gather.”

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A funny thing happened on the way to the communications revolution: we stopped talking to one another.

I was walking in the park with a friend recently, and his cell phone rang, interrupting our conversation. There we were, walking and talking on a beautiful sunny day and—POOF!—I became invisible, absent from the conversation.

The park was filled with people talking on their cell phones. They

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I've got a cell phone, e-mail and voice mail. So why am I so lonely?