Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

June 10, 1980

Dr. Roger Mattson
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Roger:

Enclosed are copies of four ads we are running in a series, trying to get public support for our operations, which will hopefully have some impact on our Illinois Commerce Commission in future rate cases.

The nuclear ads are based on information out of public reports. In the case of the Three Mile Island ad, much of the information came from Kemeny, Rogovin, and other reports. We are using Dr. Robert Laney, recently retired Associate Director of Argonne National Lab, as a technical consultant. As you know, we are still dedicated to making nuclear power a safe, economical, environmentally sound part of the country's energy program. Unfortunately, TMI and the press coverage has scared a lot of people there and in our area also.

We have attempted in these two ads, and will follow up with others, to put some of the issues in simple terms and, hopefully, in perspective. I would be interested in any comments you have.

Sincerely,

Byron Lee, Jr.
Executive Vice-President

XGO5, 11

8006170681

EXPLODING THREE MILE ISLAND.

Think back. It hasn't been that long ago.

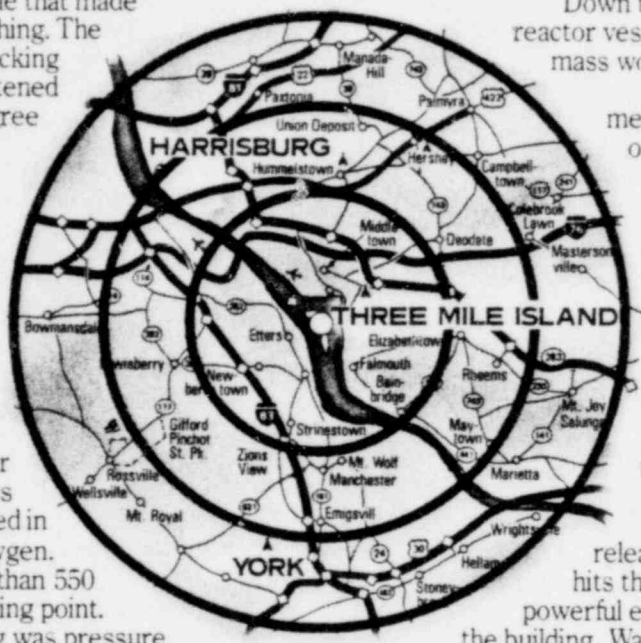
Pennsylvania looked like it might be blown off the map any minute, turned into a radioactive no-man's-land forever. "Permanently uninhabitable" was the way they said it in the movie, *The China Syndrome*.

That's the trouble. A lot of people said a lot of things. And a lot of it just wasn't true. Not even close.

Take the hydrogen bubble that made all the headlines. Bubble, nothing. The implication was time bomb, ticking away. And that would've frightened anybody who didn't have a degree in chemistry.

The fact is, that bubble couldn't explode. Not by any stretch of the imagination.

To understand why, you have to understand how the hydrogen got there in the first place. And that takes some understanding of how the reactor at Three Mile Island was designed to work.



It's the pressurized-water type, meaning the fuel core was cooled by keeping it submerged in water. H_2O. Hydrogen and oxygen. Heated by the core to more than 550 degrees, well beyond the boiling point.

What kept it from boiling was pressure, approximately 2,000 pounds worth. But on March 28th, last year, a relief valve on the pressurizer stuck open, the pressure dropped, and the water—the H_2O—inside the reactor boiled into steam.

When that happened, the zirconium-alloy tubes housing the fuel underwent a chemical reaction. A kind of accelerated rusting that combined the zirconium from the tubes with oxygen from the water to form zirconium oxide.

That's important, because with all the oxygen used up by the chemical reaction, the only part of the water left was hydrogen. The bubble. And what nobody bothered to tell you at the time was that without oxygen, hydrogen can't explode.

On May 1st, more than a month later, the Nuclear Regulatory Commission admitted the scare was all a mistake. Roger Mattson, Director of its Systems Safety Division, told a congressional committee there "never was any danger of a hydrogen explosion in that bubble."

That never made headlines.

And more than likely, neither will the fact that even if there had been a meltdown, it wouldn't have spelled disaster for Pennsylvania. It couldn't have.

First of all, the fuel core in the reactor vessel was surrounded by a containment building. Not just any building, an immense fortress with an enormously thick floor. Eleven feet of solid concrete reinforced with steel.

Second, for a molten mass to eat through it, that concrete-and-steel floor couldn't be covered with water. But water is what's used to cool the core. And when the relief valve on the pressurizer stuck open, sending several hundred thousand gallons shooting out, the law of gravity gave it only one place to go.

Down to the floor, right under the reactor vessel. Right in the path a molten mass would take.

That's the fallacy of the meltdown theory. In spite of the overwhelming odds against it, if all systems failed, if the entire core melted, if it got through the foot-thick steel reactor vessel in one piece and dropped to the floor below, it would've been stopped right there. Cooled by an ocean of water inside the containment building, not 20 feet from where the meltdown started.

As for any sudden burst of steam pressure that might be released when the molten mass hits the water, it wouldn't be nearly powerful enough to rupture the walls of the building. Walls capable of withstanding almost twice as much force.

In other words, there was no way for significant radioactivity to reach the atmosphere outside.

The point of it all is that Three Mile Island and nuclear power itself deserve a fairer shake. A second look minus the hysteria, the hyperbole, the half-truths, and the untruths. They deserve a close, careful reading of the facts.

True, we've experienced the worst accident in the 22 years America has been using nuclear energy to produce electricity. But it wasn't the apocalypse. No one died. And except for the stress of being scared stiff, no one was injured. Despite the equipment failures and failures in judgment, despite everything that went wrong, the safety systems worked.

What really exploded were myths.

Commonwealth Edison

One in a series of ads on the issue of energy in our community, paid for by the company and not published at our customers' expense.

WILL BURYING NUCLEAR WASTE BURY US ALL?

It's enough to strike fear in anyone's heart.

Nuclear waste, by-product of every reactor in the world, radioactive for tens of thousands of years, lying there like some malevolent genie in a bottle waiting to be let loose.

That's what the future of commercial nuclear power hinges on. What do we do with the waste? Where on earth is it safe? Can burying it really keep it from coming back to kill us?

No matter what you've heard, there are answers. Solutions exist. Now.

One is reprocessing. Dissolving spent fuel rods in a strong acid, then separating out the plutonium and leftover uranium for reuse. It leaves just four percent of the total to bury. And in six hundred years, that four percent won't contain any more radioactivity than all the uranium ore mined to make the fuel in the first place.

Now, if six hundred years still sounds like an eternity, consider the process called vitrification. In plain English, that means immobilizing the waste. Actually turning it into a piece of solid glass. Inert, chemically stable glass, enclosed in a steel jacket an inch thick and buried.

Really buried. A good two thousand feet down in a bone-dry salt bed or granite formation whose very existence means it hasn't been disturbed by groundwater or an earthquake in at least ten million years. And in all probability, won't be for millions more.

But what if? If there were a quake. If the shifting earth drowned the site in a river of water. If the steel jacket ripped apart. If the glass inside were exposed to the current for ages to come. If somehow, in some inexplicable way, though glass is highly insoluble in water, it still managed to dissolve. And the water, though separated from the surface by two thousand feet of rock and soil, still managed to find a way up.

If all that happened, against all odds, the very volume of water would dilute the dissolved waste even further. And the slow flow (groundwater travels less than a hundred yards a year) would give the radioactivity remaining more than enough time to decay to about the same level as the background radiation we're exposed to all the time.

None of that is a pipedream. It's fact. Documented fact. Spelled out again and again in countless government reports and independent studies. Proven again and again in exhaustive tests and pilot projects (in England, France, Germany, Sweden and Canada, as well as Kansas, Nevada and Washington State). And almost universally accepted by the scientific and technical community world-wide.

What's more, there are literally thousands of square miles of salt beds and granite formations under America, and only a few square miles could easily hold every ounce of high-level waste generated by all our nuclear power plants put together. Not to mention the eighty million gallons stored up in the thirty-five years our country has been making atomic weapons.

The only problem we haven't solved yet is how to get the show on the road. We can't reprocess because the government won't okay it. Despite the knowledge that every pound of plutonium we salvage not only leaves one less to bury, but also can produce as much energy as seven hundred fifty tons of coal or one hundred thirty thousand gallons of oil.

And we can't bury what we've already got, even though doing it safely doesn't depend on reprocessing, because Congress gave the government a monopoly on permanent storage back in 1970. And despite the weight of affirmative evidence, it hasn't acted yet.

The problem is, if all seventy-two nuclear power plants in the United States vanished tomorrow, nuclear waste wouldn't. There's still a lot sitting around, and less than one percent of it is from power plants. Remember, years of nuclear weapons production have amassed eighty million gallons, and there's more coming.

Isn't it time we laid the problem to rest?

Commonwealth Edison

This ad is paid for by the company and not published at our customers' expense.

WE'RE WORKING FOR YOU. AND WE NEED A RAISE.

About eight months ago, we asked the Illinois Commerce Commission for an emergency rate increase. Several weeks ago we got a very small portion of it.

Now, we can't blame you if you're not broken up about that. It seems like every time you turn around these days, prices are going up. So it must be nice to see somebody hold the line for a change.

But this isn't the right time.

We're getting hit by inflation the same as you. It's costing us more and more to generate the electricity you use. And the plain truth is, we can't keep up.

Transformers that were $600 five years ago cost us $950 now. Fifty-eight percent more.

The poles that we need to hold our power lines. Fifty-three percent more.

The crossarms on those poles. One hundred and thirty-three percent more.

And that's just for instance. It's the same story with every piece of equipment we need.

If that's not enough, wages have gone up, and just about everything else as well. Even our state and local taxes are sixty-five percent higher than they were back then. Three hundred and thirty-seven million dollars in 1978 alone, the biggest tax bill in the state.

So the money's been going out faster than it's been coming in. Earnings are down. And our stock has sunk to less than half its 1967 value.

If we can't turn that around, if we can't keep attracting investors, if we can't borrow the money we need at reasonable rates, we simply won't be able to keep going.

Not only won't we be able to cover the rising cost of day-to-day operations, we won't even be able to maintain the kind of reliable service you're getting now. Because reliable service takes new plants and equipment to handle the increasing demand for electricity.

But if the impossible actually happened, if no one ever bought another appliance or built another home, if no new office buildings went up and factories never expanded an inch, if northern Illinois quit growing tomorrow we'd still need new plants and equipment. Virtually everything we own, from wires and poles to our generating stations themselves, is going to wear out. Sooner or later, one by one, they'll have to be replaced.

The trouble is, that's an awfully expensive proposition. More than one billion six hundred million dollars for a single generating station, like the one we're finishing up right now at LaSalle. And what our customers pay for electricity doesn't begin to provide enough money.

The difference has to come from investors. Only, investors aren't likely to put up the money without a fair rate of return, which they won't get as long as our rates stay where they are. And whether you realize it or not, where our rates are is cheap compared to most places our size.

Roughly half of what they pay in New York City. Over twenty-five percent less than in Boston or Newark. Even substantially less than in lots of smaller cities close to home, like Terre Haute and Des Moines; and their costs—for wages, land, construction, and much more—aren't anywhere near what ours are.

There's just one solution. Adequate rate relief. A realistic increase, and soon. Before it's too late.

Since we're all in the same boat, we thought you ought to know.

Commonwealth Edison

This ad is paid for by the company and not published at our customers' expense.

CHEAPER THAN NEW YORK. SAN DIEGO. LOS ANGELES. BOSTON. BALTIMORE. PHILADELPHIA. CLEVELAND. GARY. PITTSBURGH. TAMPA. NEWARK. KANSAS CITY. TERRE HAUTE. DES MOINES. ETC. ETC. ETC.

No, the grass isn't always greener everywhere else.

There are plenty of places where the price of electricity is higher than it is here. Big ones, like New York City, where it's nearly twice as much.

And some not-so-big ones, not so far away, where they pay more too. In Lafayette and Des Moines and Terre Haute, for example. Even though it costs more here for land, taxes, wages and almost everything else we have to contend with, like laying 138,000-volt cables under downtown Chicago.

Now, if you're tempted to ask how come we're cheaper in spite of all that, there are really several answers.

The fuel we use. About forty percent of it is uranium. And from a cost standpoint, that's as good as you can get.

The innovative technology we've developed. Like refrigerating those cables we mentioned so they can carry bigger loads. In other words, move more electricity for less money.

And something else just as important, called "economies of scale." Lower costs due to larger size. It saves us a bundle, which helps keep our rates down.

What it all means is that even with the rate increase we need, when all's said and done, your electricity should still be cheaper. Because nobody's rates are going to stay where they are until America finally licks the problem of inflation.

So the next time you think we're asking for too much, take a minute to think about the people in New York and Los Angeles and little Lafayette.

A lot of them would probably like to be in your shoes.

Commonwealth Edison

One in a series of ads on the issue of energy in our community, paid for by the company and not published at our customers' expense.