Madam

Speaker, there was a very interesting

editorial in the Wall Street Journal

today. Let me read a bit from it. Talk

about timing. It is, perhaps, fortuitous.

Yesterday’s test offered no big surprises

about Iran’s missile technology,

but they are a useful reminder of just

how real the Iranian threat is and how

rapidly it is growing. One of the missiles

tested was the latest update, the

Shahab-3, which has a range of about

1,250 miles. Replace the payload with a

lighter one, say, a nuclear warhead,

and the range gains 1,000 miles.

b 1815

Add a booster, and the range can be

extended even farther. North Korea did

just that with its Taepodong-2 missile.

Technology that is passed along to

Iran. U.S. intelligence estimates that

Iran will have a ballistic missile capable

of reaching New York or Washington

by about 2015. But Iran may already

have the capability to target the

U.S. with a short-range missile by

launching it from a freighter off the

east coast. A few years ago, it was observed

practicing the launch of Scuds

from a barge in the Caspian Sea.

This would be especially troubling if

Tehran is developing EMP, electromagnetic

pulse technology. A nuclear

weapon detonated 100 miles over U.S.

territory would create an electromagnetic

pulse that would virtually

shut down the U.S. economy by destroying

electronic circuits on the

ground. William Graham, head of a

congressional commission to assess the

EMP threat, testifies before the House

Armed Services Committee this morning.

We hope someone asks him about

that.

I attended that hearing. And he was

asked about that.

Let me give you a few quotes from

his testimony this morning.

he says, ‘‘can achieve an

EMP attack capability without having

a high level of sophistication. For example,

an adversary would not have to

have long-range ballistic missiles to

conduct an EMP attack against the

United States. Such an attack could be

launched from a freighter off the U.S.

coast using a short- or medium-range

missile to loft a nuclear warhead to

high altitude.

‘‘Terrorists sponsored by a rogue

state could attempt to execute such an

attack without revealing the identity

of the perpetrators.

he says,

he says,

Dr. Graham was the principal author

of a report produced by the Commission

to assess the threat to the United

States from electromagnetic pulse attack.

And let me read a single statement

from the introduction to this study.

And a little later we’ll have a chance

to note what those catastrophic consequences

are.

Here is a report, the CRS report for

Congress.

And they discuss also

this electromagnetic pulse.

The first chart shows us a quote from

one of our now Senators that I had the

privilege of serving with on the Armed

Services Committee in the Congress

before he went to the Senate, JOHN

KYL. He says,

he says,

and he might have

added Iran.

The next chart is a quote from Major

Franz Gayl,

What they’re saying is that if this

EMP attack was made in one of these

countries, that they would not be hurt

anywhere near as much as we because

they have a much less sophisticated infrastructure.

doubtful recovery,

What is this EMP that these several

reports and articles have been talking

about?

The next chart, and this comes from

the U.S. Defense Nuclear Agency, and

this shows how an EMP is produced.

Our first exposure to this was way back

in the early 1960s, 1961, I believe, over

Johnston Island in a test, and then we

were testing nuclear weapons in a test

called Starfish. I think that was one in

the series of the Fishbowl tests. And

this test was the first one that we had

conducted above the atmosphere. All of

the other tests had been on a tower or

underground. This one was above the

atmosphere.

And we had some very surprising results

from that. It was about, I think,

800 miles away from Hawaii and almost

instantaneously, there were effects,

electronic and electrical effects, in Hawaii

from this extra atmospheric detonation

of a nuclear weapon.

This chart shows what happens when

the nuclear weapon explodes. There are

some gamma rays that come out. They

produce Compton electrons. And these

Compton electrons then flow at the

speed of light, line of sight, and if the

weapon is, say, 300 miles high above

the United States, that would cover all

of the United States.

This EMP wave is like a lightning

strike, although different than lightning.

Or a static electricity. A really

strong static electricity everywhere all

at once. It’s just hard to conceive of

something like this, that there would

be a simultaneous over all of the

United States lightning strike, although

not quite like lightning, that

would destroy, if it were strong

enough, all of the electronic devices in

our country.

The features in EMP from a high altitude

burst they say is wide-area coverage,

high-field strengths, and they

note here 50 kilovolts per meter. A little

later we will talk about what the

EMP Commission learned from a couple

of Russians, Soviet generals who

are now Russian generals, who said

that the Soviets had developed 200-

kilovolts-per-meter weapons. We will

discuss a little later what that means.

Broad frequency band of a very broad

range or frequency from D.C. to 100

MHz.

There isn’t any fallout

because there is nothing to fall

out. Fallout is produced when a weapon

is detonated at the surface or near the

surface and it blows a lot of radioactivity

up in the air. In this case, there

isn’t any material blown up in the air

so there really isn’t any conventional

fallout.

The next chart shows us the range,

what would be covered by a weapon

detonated at various altitudes. And

this is looking at the center of our

country near Iowa and Nebraska. And

the surface, little red dot here in the

middle, if it’s detonated on the surface,

very small area is impacted. If it is 60

miles up, you’d get a broader area; 200

miles up, you get a still broader area.

And if you go 300 miles up, it covers all

of the United States, the tip of Maine

and Florida and the State of Washington.

The next chart shows, again, the coverage

of an EMP, and this one shows

how the intensity of the field degrades

with distance. And there is this socalled

‘‘smile effect’’ from it. And the

color coding over there shows the degradation

of the intensity. It starts out

with red in the middle, which is 100

percent, and then we get to the purple

out here, and that’s 50 percent. And

you see that the degradation is cut

into about half by the time you reach

the margins of our country.

That’s important when we look at

the next chart because the next chart

redacted the names of the Soviet generals,

and now Russian generals is now

redacted. The Commission—this is

from the EMP Commission report.

And one needs to note the close

working relationship between North

Korea and Iran.

The next chart further looks at this

threat. And this again is from the EMP

Commission, a Commission set up 4

years ago by legislation that I initiated.

They have been working for 4

years now, and we are planning this

year to extend their life another 4

years because it is absolutely essential,

as you will see as we go on with the

discussion, that both our military and

our national infrastructure be aware of

this threat and do reasonable things to

protect our military and our country

against this threat.

they say, ‘‘hold at

risk the continued existence of today’s

U.S. civil society.’’ That is quite a

statement. What that means is that

EMP is one of a small number of

threats that may end life as we know

it. It could

Then there was

only one adversary. Today there are

potentially many who have nuclear

weapons or could acquire nuclear weapons

and missiles and even short-range

missiles, as was pointed out, that could

be launched from a tramp steamer off

our coast.

b 1830

Potential adversaries are aware of

the EMP’s strategic attack option. My

wife raised this question: Should you

really be talking about this because

you are giving these people ideas? And

I assured her that every one of our potential

enemies has in their open literature

detailed discussions of an EMP

attack and how it could be used and

how they would use it.

A little later I’m going to show you a

chart which is in Russian writing, and

we can show you from the open literature

of any of these countries that

might launch an attack against us, in

their open literature they know. Ninety-

eight percent of the people in our

country may know nothing about EMP

and what it could do to us, but I will

assure you that 100 percent of our potential

enemies know all about EMP

and what it could do.

The threat is not adequately addressed

in U.S. national and homeland

security programs. Dr. Graham is a scientist,

and scientists frequently are capable

of understatement. This is a

gross understatement. The threat is

not adequately addressed. The threat is

not addressed.

You know, some things are too good

to be true, and usually if something is

too good to be true, it’s not true. This

thing is so bad, the potential is so

enormous, that some people think, gee,

that’s just too bad to be true, so it

can’t be true, like that’s too good to be

true so it can’t be true, but I’m afraid

this is true.

The next chart, and I’m really

pleased at the quality of the nine members

of this commission. These are top

people with many, many years of experience.

When I was just finishing my

first two years of teaching medical

school, 56 years ago now, Dr. Johnny

Foster was designing nuclear weapons

for our country, and he was the director

of LLNL and the director of

DDR&E.

Mr. Earl Gjelde, chief engineer and

acting director, Bonneville Power Administration,

very knowledgeable in

our grid and its vulnerabilities.

Dr. Bill Graham, who was the chairman,

he’s had a long, long experience,

has been appointed by a couple of different

administrations. He was a

science advisor, for instance, to President

Reagan. He was Rumsfeld’s deputy

in their very important study on

the emerging threat of ballistic missiles.

Dr. Robert Hermann, director of

NRO. NRO is very interesting. Of

course, just a moment to talk about

NRO, National Reconnaissance Organization.

Until just a few years ago even

that name was secret, and they spend

probably more money than almost any

other agency in our country. There

were several billion dollars that they

couldn’t account for, and we finally decided,

gee, for what they do, that’s

small change, and we won’t worry

about that. You see, the NRO is the organization

that buys and launches all

of our incredibly expensive spy satellites,

and he was the director of NRO;

principal deputy assistant secretary to

the Air Force; senior vice president,

United Technologies.

Hank Kleupfel, advisor to the President’s

NSTAC; vice president of the

very prestigious International Science

Applications International Corporation.

General Lawson, a four star general,

with a lot of experience.

Gordon Soper, who has a lifetime of

experience, is director of the Nuclear

Forces C3, the chief scientist at DCA.

And one of my favorites is Dr. Lowell

Wood, director’s staff, LLNL; technical

advisor, SSCI and the House committee,

the committee on which I

serve.

When I first became interested in

EMP, I called Tom Clancy, whom I

know, and I knew that he had an EMP

sequence in one of his books. And so I

knew he knew something about it. And

so I called to ask him about it. He said,

well, if you read my book you know all

I know about it because I put it all in

the book. But he referred me to the

person who he said was the smartest

person hired by the U.S. government.

That’s a tall order because we hire a

lot of people, but this Dr. Lowell Wood,

he said, is the smartest person hired by

the U.S. government.

And then Dr. John Woodard, who is

executive vice president and deputy director

of Sandia National Labs. That’s

an interesting one because I went out

to visit the last of our 10 children who

has a Ph.D. in computers working at

the Sandia National Labs, and he

brought home from work some little

things that they had sent him that led

me to believe there might be some expertise

in Sandia National Labs that

would be of use in our evaluations of

this EMP threat.

So I asked him to inquire about that,

and the next day I was over there I

think for four or five hours for a classified

briefing. Well, I didn’t know when

I went there that Dr. John Woodard,

who is the executive vice president,

was one of the nine members of this

commission. So that was a very, very

fortuitous trip.

I just wanted to note how impressive

this group of people are.

Potential adversaries know about

EMP. I wanted to spend just a moment

on this because I don’t want anybody

to believe that we’re somehow letting

the cat out of the bag here in telling

people what they don’t know, and this

is from the EMP Commission itself.

—oh,

let me tell you about this. I was there

and I think there were about nine of

us, a codel, and we were in Vienna,

Austria, with three members of the

Russian Duma, Vladimir Lukin, who

was ambassador here at the end of

Bush I, and the beginning of the Clinton

administration; the third ranking

Communist, a tall, handsome blonde,

Alexander Shabonof; and a bright, rising

star in one of their parties there,

Vladimir Rushkoff.

And we were there in Vienna with a

personal representative of Slobodan

Milosevic, and Slobodan Milosevic had

the three captives, remember, and he

wanted rid of them. And his personal

representative there said, you understand

how important it is for him to

get rid of those three people, because if

any harm comes to them while they’re

under his control, that’s going to be

bad news for him.

Jesse Jackson was there, and they

really did not want to release them to

Jesse Jackson. They wanted to release

them to us. The head of our codel had

promised that he wouldn’t go there. I

had not promised I wouldn’t go, and so

I volunteered to go. Other members of

our codel said, gee, I wonder if we really

ought to go, and maybe there will be

several additional captives there if we

go.

I assured them that if the Russians

went with us—and by the way, the Russians

joined the G–7 to become the G–

8, and 6 days later, the framework

agreement which we negotiated there

was approved by the G–8. The only

large country in whom the Serbs had

confidence was Russia, and Russia told

us, whatever we agree to in these negotiations,

the Serbs will agree to.

Well, Vladimir Lukin sat in this

hotel room in Vienna, Austria, for a

couple of days during these talks, with

his arms folded across his chest. He

was very angry. He was looking at the

ceiling. He said, you spit on us; now,

why should we help you? And he made

that statement because the United

States had kind of said, you know, then

oil wasn’t $140 a barrel and Russia was

very poor and their military was in

decay, and we essentially told them,

you know, we’re the big boy, we’ll take

care of this, we don’t need you.

And so Vladimir Lukin was kind of

smarting under that, and he said, You

spit on us; now, why should we help

you? And then he made this statement.

He said, If we really wanted to hurt

you, with no fear of retaliation, we’d

launch an SLBM, submarine launch

missile. We wouldn’t know where it

came from; it came from the sea. And

we’d detonate a nuclear weapon high

above your country, and it would shut

down your power grid and your communications

for 6 months or so.

Alexander Shabonof, the third ranking

Communist who was there, smiled

and said, And if one weapon wouldn’t

do it, we have some spares, like about

10,000 is how many spares they had.

So I was there when they made that

statement. The Chinese military

writings describe EMP as the key to

victory and describes scenarios where

EMP is used against U.S. aircraft carriers

in a conflict over Taiwan. They

read all statements from the EMP

Commission.

A survey of worldwide military and

scientific literature sponsored by the

Commission found widespread knowledge

about EMP and its potential military

utility, including in Taiwan,

Israel, Egypt, India, Pakistan, Iran and

North Korea.

As I said earlier, maybe 98 percent of

our people don’t know much, if anything,

about EMP, but I can assure you

that 100 percent of our potential adversaries

know everything about EMP.

Terrorist information warfare includes

using the technology of directed

energy weapons or electromagnetic

pulse. This is from the Iranian Journal,

March of 2001.

Iran has tested launching a Scud missile

from a surface vessel, a launch

mode that could support a national or

transnational terrorist EMP attack

against the United States.

And the next chart shows a continuation

of these statements to assure us

that when we talk about EMP and the

fact that we are vulnerable and we

really need to do something about that

that we’re not letting the cat out of

the bag.

This is from an Iranian Journal, December

of 1998.

This, by the way, is one of the

other—when the report said there were

just a few weapons that could bring us

to our knees and end life as we know it,

a really aggressive cyber attack that

brought down all of our computers—

and our computers control everything.

They control your power grid. They

control your communication. That is

what they’re talking about here.

This is the Iranian

Journal.

Terrorists have attempted to acquire

non-nuclear radio frequency weapons.

What we’re talking about specifically

today and what our hearing was about

and what the editorial in The Wall

Street Journal was about was nuclearproduced

electromagnetic pulse. We

can produce here on Earth a very focused,

targeted EMP. It is conceivable,

for instance, that you can mount one

of those in a van and go down Wall

Street and shut down all the computers

in the buildings right next to you. That

is a very local thing. It would be hurtful,

but we could recover from that.

The next chart really is an interesting

one. To convince you that our

potential enemies really do know about

this, this is from a Russian journal,

and there it is in Russian and it’s obviously

EMP. You can see the detonation

of the weapon. You can see the sparks

here in the power grid. You can see the

resisters here, the fuses probably,

they’re all exploding.

The next chart shows an American

translation of what the Russians were

saying in this chart, and you will notice

the same two figures here.

Electromagnetic fields arise from nuclear

explosions which produce impulsive

electrical currents and stress in

aerial and ground conductors and cables—

this is a direct translation, and

it’s sometimes hard to translate into

smooth English words in another language—

and in radio station antennas.

Radio waves are also produced which

propagate to large distances. And boy,

they do propagate to large distances.

Electromagnetic fields and currents

in the atmosphere arise as the result of

the formation near the explosion of a

shining region and a large region of

ionized atmosphere produced by penetration

radiation.

This is our translation of their description

of the nuclear detonation and

the production of these alpha particles

and these Compton electrons.

Source, currents and stresses exhibit

transient impulse with characteristics

close to the impulse caused by lightning

discharges. Its duration is a few

milliseconds.

Well, some of the pulses, as a matter

of fact, last a couple of minutes. There

are some very long wavelengths in this

that will couple with railroad tracks,

for instance. There’s some very, very

short wavelengths which will couple

with the tiniest fields in a chip.

For ground and aerial explosions, at

a radius of a few kilometers from the

center of the explosion, overstress between

conducting aerial lines or electrical

supplies and grounds reach tens

and hundreds of thousands of volts.

b 1845

While between the arteries of underground

cables—ah, that’s another

thing, burying your cables won’t protect

you. Some of these long wavelengths

reach underground and couple

with the cables underground. So essentially

everything is taken down. The

one thing that is immune to it is

fiberoptics. But unless you’re using optical

switching, it will do no good to

use fiberoptics because the EMP will

take out the switching. So if you have

optical switching and fiberoptics, then

you’re immune to it.

But we can make all of our systems

immune to it. It costs some money.

Our fighter planes are all immune to it.

The President’s Air Force One is EMP

hardened. We have a few satellites up

there that are EMP hardened. But

about 95 percent of all of our military

communications go over commercial

satellites. And the satellites are the

weakest link in the chain because it is

very expensive to put stuff in space; it

costs $5,000, $10,000 a pound. And hardening

increases weight as well as expense.

And so nothing of our civilian

infrastructure, space infrastructure is

hardened.

A single detonation 300 miles high

above our country would take out all

low Earth orbit satellites that are a

line of sight. The prompt effects take

that out. And then the Van Allen belts

are pumped up, and the other satellites

will all be dead in a few days to a week

or two. And it would do you no good to

launch other satellites even if you

could because the Van Allen belts will

stay pumped up for a year or so.

Of course this effects everybody. This

is the strike that comes back to bite

you. And so your enemy would have to

be prepared that they would also have

no satellites because a single weapon

would take out all of the Earth’s low

orbit satellites; no more GPS, for instance.

The next chart is a look at why

EMP? Why would an adversary use

electromagnetic pulse? States or terrorists

may well calculate that using a

nuclear weapon for EMP attacks offers

the greatest utility. EMP offers a bigger

bang for the buck against the U.S.

military forces in a regional conflict or

a means of damaging the U.S. homeland.

There is no way that a nuclear weapon

could be used at ground level that

would produce anywhere near the effects

that are produced by a nuclear

weapon detonated in space, producing

this EMP pulse.

EMP may be less provocative of U.S.

massive retaliation compared to a nuclear

attack in a U.S. city that inflicts

many prompt casualties.

If there was an EMP attack on our

country, all that it has done is to take

out all of our computers, which means

we have no power grid, we have no

communications. How do you respond

to that? Are we now justified in vaporizing

the grandmothers and babies in

the country from which it was

launched? By the way, unless it’s

launched by Russia, which has thousands

of missiles, or by China in the future,

I don’t think we will know who

launched it because I don’t think that

any nation will launch against us from

their soil because our satellites would

detect the launch and we would know

where it came from. And why should

they? They’re a long way off. Our

shores are close to the oceans, and

there are thousands of ships in the

north Atlantic shipping lanes. It is impossible

to keep track of those ships. It

would be very easy to—and their literature

talks about this—using a short

range or a medium range missile, to

launch from a ship.

There is a very interesting story—I

hope that it is published, I was given a

prepublication copy of it—called ‘‘One

Second After.’’ And it’s a story of what

happens in our country with an EMP

attack. It’s a very well written story.

It’s in the hills of North Carolina. And

there is a retired colonel who is there

teaching in a university there. And on

his child’s 12th birthday, I think it was,

they’re having the birthday party and

the lights go out. And he notices in a

few minutes that there is no noise from

the interstate, which is just over the

hill. And he walks over to where he can

look down on the interstate and he sees

that all the cars are parked on the

interstate and people are walking

around the cars.

The story runs for a year. And at the

end of the year—and I asked the members

of the commission, they said, well,

it might not be quite that bad, but at

the end of the year in this story called

One Second After there are only 25,000

people still alive in New York City, 90

percent of the country’s population is

dead, only 80 percent of the population

in the area in which the story is set in

North Carolina is dead. I said that for

many people this is just too bad to be

true, and so they don’t even want to

think about it.

During the Clinton administration he

had a commission to set up, headed by

General Marsh, to look at critical infrastructure.

And they came to testify

before our Armed Services Committee

and we asked them, did you look at

EMP? He said yes, we looked at EMP.

Well? Well, we decided there was not a

high probability of an EMP attack, so

we didn’t look at it anymore. I said,

well, gee, with that attitude, if you

haven’t already, when you go home tonight

you’re going to cancel your fire

insurance. I mean, that’s why we have

insurance, when there is a low probability,

high-impact event. And I know

of nobody at the end of the year, I’ve

never heard anybody come and complain,

gee, you know, I bought that fire

insurance and my house didn’t burn.

All that I want my country to do is

to make the kind of an investment

that represents the equivalent of buying

fire insurance on your house. Now,

I have fire insurance on my house, I

wouldn’t sleep well tonight if I didn’t,

but I haven’t hired somebody to stand

there and to yell ‘‘fire, fire,’’ when he

sees a fire. I’m content with my smoke

alarms and so forth. But I’ve done what

I think is a reasonable thing. But as

the EMP Commission pointed out, our

country has not done what would appear

to be a reasonable thing in preparing

for this eventuality, neither in

the military nor in the private sector.

And these two studies that I referred

to, the one by CRS, the Congressional

Research Service, and the other by this

commission, both of them paint the

same picture, that an EMP attack on

our country would be catastrophic.

Now, there is something that we can do

about that. And the Commission ends

with a number of recommendations.

What would we do if there was an

EMP attack on us? Not a building is

hurt, you are not hurt—for the moment.

Although, if it was really this

200 kilovolt per meter weapon—and we

have not tested anything more than a

fourth of that, about 50 kilovolts per

meter—if it really was that weapon,

the members of the commission are

fairly confident that everything comes

down, which means that you’re in a

world where the only person you can

talk to is the person next to you, unless,

by the way, you happen to be a

ham operator with a vacuum tube set

because vacuum tubes are a million

times less susceptible to EMP.

I remember a number of years ago a

Soviet MiG pilot defected to Japan,

and you may remember that. And we

were disdainful of the Russians because

their planes still had vacuum tubes;

they’re a million times less susceptible

to EMP. And the only way you could go

anywhere after this really robust EMP

laydown is to walk, unless you happen

to have an old car that has coil and distributor.

These are really tough; they

almost certainly would be immune to

this.

EMP could compare to a nuclear attack

on a city, kill many more Americans

in the long run—nobody immediately—

and we die in the long run because

we do not have any electricity,

we do not have any transportation. The

average city has 3 days supply of food.

And go to any of our major cities and

have the lights go out for a few hours

and you will see how thin the veneer of

civilization is.

EMP could, compared to a nuclear

attack on a city, kill many more

Americans in the long run from indirect

effects of collapsed infrastructure,

power, communications, transportation,

food and water. City water is

not flowing, the septic system is not

working.

What do you do? There are a number

of recommendations—we’ll look at a

few of those in a few moments—that

they make. But the commission is convinced

that, with reasonable expenditure,

we can do something meaningful

to protect ourselves against this. And

by the way, our very vulnerability invites

this attack. They know how vulnerable

we are, it’s in their public

writings. They know that.

Strategically and politically, an

EMP attack can threaten entire regional

or national infrastructures that

are vital to U.S. military strength and

societal survival—vital to survival,

they’re making the point—challenge

the integrity of allied regional coalitions

and pose an asymmetrical threat

more dangerous to the high-tech West

than to rogue states.

To a state without our sophisticated

infrastructure, losing electricity

wouldn’t matter much. There are many

countries in the world that have a few

hours of electricity in the morning and

a few hours of electricity in the

evening, that may have only water at

certain hours of the day. And when

they do that, they plan to store that

water so that they will have enough for

the rest of the day. So cultures like

that would be nowhere near as much

affected by an EMP attack as we

would.

Technically, an operational EMP attack

can compensate for deficiencies in

missile accuracy—if you miss by 100

miles, it doesn’t matter; it really

doesn’t matter if you miss by 100

miles—fusing range, reentry vehicle

design, target location intelligence,

and missile defense penetration. It

really doesn’t matter. None of these

things matter. You just shoot a weapon.

If a scud launcher goes up about 180

miles, that’s plenty high to shut down

the whole northeast and well down the

mid coast. And it really doesn’t matter

if you miss where you would like it to

detonate by 100 miles, it really doesn’t

make any difference.

The next chart shows the kind of

technology we used to have during the

Cold War. This is a trestle on which we

have a large airplane. And we are doing

simulated EMP attacks on that airplane

to make sure that we have hardened

the airplane. That’s all mothball

now, we aren’t doing that anymore. By

the way, it was impossible to really

simulate an EMP attack because of the

long line effect. There isn’t any way,

with this EMP burst created here on

Earth, that we could cover an area

miles long. And railroad tracks, power

lines, any of these things are antennas.

And there are some very long wavelengths

here that, coupled with very

strong structures like miles of power

lines or miles of railroad tracks, and

you really can’t simulate the line effect.

But we’ve done as good as we can

do. And after hardening, we would test

the planes to make sure that we had

hardened them.

The next chart is one that is from

this study of the EMP Commission.

They started out looking at the military,

but since all of our military bases

are surrounded by towns and cities and

suburbs and so forth, and since none of

our military bases are stand-alone, as

far as how power is concerned, they

have some UPS units, some units that

will produce temporary power, but few

of them will last more than 48 hours

and then their tank of fuel has run out

and the generators stop working.

And so they started looking at the

interface between the military and the

civilian infrastructure, and they became

very, very concerned about how

interrelated and how fragile our national

infrastructure was. It has grown

to accommodate the growth of our population

and our increased demands for

energy, and it is not designed as an integrated

system as it would be if you

didn’t have any of this and you started

from scratch and put the whole thing

in; it’s kind of added on to and added

on to. And so they have this little

chart which shows, like a house of

cards, the interrelationships between

oil and gas and communications and

water and banking and finance and

government services and emergency

services and transportation and electrical

power and fuel. Look at the lines

that run there, they all run from electrical

power. If you don’t have electrical

power in our world, you don’t

have anything. Very few things operate

without electrical power. So they were

very concerned about the vulnerability

of our national infrastructure.

One of a very few high-altitude nuclear

detonations can produce EMPs simultaneously

over wide geographical

areas. Just one will do, as the previous

chart showed, if you detonate it about

300 miles high over Iowa or Nebraska.

Unprecedented cascading failure of our

electronics-dependent infrastructure

could result. As a matter of fact, if one

of these super EMP-enhanced bombs is

used, you will change that word to

‘‘would’’ result because there is no

question but that that would bring

down our whole infrastructure.

b 1900

Power, energy, transport, telecommunications,

and financial systems

are particularly vulnerable and interdependent,

and they would all come

down. EMP disruption of these sectors

could cause large-scale infrastructure

failures for all aspects of the Nation’s

life.

Again, I say you would essentially, if

this biggest weapon was used that produces

200 kilovolts per weapon, you

would be in a world where largely the

only person you could talk to is the

person next to you unless you had that

ham radio with a vacuum tube in it,

and the only way you could go anywhere

is to walk unless you happened

to have a car that had a coil and a condenser.

Both civilian and military capabilities

depend on these infrastructures,

almost totally. Without adequate protection,

recovery could be prolonged

months to years. That’s a very long

time to hold your breath in a situation

like this.

Now we will look at the conclusions

and they had a number of conclusions.

One of the conclusions was the EMP

threat is one of a few potentially catastrophic

threats to the United States.

By taking action, the EMP threat can

be reduced to manageable levels. U.S.

strategy to address the EMP threat

should balance prevention, preparation,

protection, and recovery. And one

of the first things that we should do is

to look at recovery. Should it happen,

what would you do?

I remember that during the Cold

War, I was working for IBM corporation,

and I was concerned about what

we would do when we came out of the

fallout shelter. And then those fallout

shelters were so prevalent, so omnipresent,

that IBM was giving their employees

interest-free loans to build a

backyard fallout shelter. And I asked

myself what would I do when I come

out of the fallout shelter because it’s

going to be a whole different world?

Then we were looking at perhaps hundreds

of nuclear weapons falling on our

cities and taking them out, but we had

all of the fallout shelters, the civil defense

things. Any public building you

went into, there were brochures there

telling you what you ought to do and

how to do it. So people were really

thinking about it. And in schools you

practiced what you would do if there

was an attack. You would put your

head down between your knees and so

forth. I remember that when I worked

for the National Institutes of Health,

we had drills there because our big research

hospital there was going to become,

I think, a 500-bed hospital for

casualties. Then we developed and the

Soviets developed the hydrogen bomb,

and we weren’t even sure that the hospital

was going to be there after that.

It was certainly going to be there after

the conventional nuclear weapon. But

we were preparing for that. So we can

do something to prepare.

Critical military capabilities must be

survivable and durable to underwrite

U.S. strategy. If the enemy knows that

they cannot shut down our retaliatory

force, they will be much less inclined

to do this unless they plan to do it in

a very covert way. By the way, the

book that I mentioned, this attack on

our country, ‘‘One Second After,’’ the

attack comes from a missile which is

launched at sea, and then after the

missile is launched, the ship is sunk so

there are no fingerprints.

The next chart shows some conclusions,

some action items. The 2006 defense

authorization bill contains a provision

extending the EMP Commission,

and now we have the 2008 bill, and we

are hoping to extend it now until 2012.

The commission has been very effective.

I will tell you that your military

now is acutely aware of this and the

Pentagon is aggressively addressing it.

I come from Maryland, and I was

pleased when the commission members

told me today that Maryland is one of

two States in the country that is as a

State doing something about this. And

so we hope the Commission will be very

active in the next 4 years, and they are

going to States, they are going to rotary

clubs, they are going everywhere

they can go to tell the people about

this and what we can do and should do.

Terrorists are looking for vulnerabilities

to attack, and our civilian infrastructure

is particularly susceptible to

this kind of attack. As I mentioned,

our very vulnerability invites attack,

and we can reduce the probability of

attack if we do something meaningful

to protect ourselves.

The Department of Homeland Security

needs to identify critical infrastructures.

Indeed they do. I have been

concerned that our Homeland Security

Department is doing essentially nothing

in the area of civil defense. And I

remember very well the Cold War. I

was born in 1926, and I grew up during

the Depression and then the long World

War II and the long Cold War after

that. And I remember we would have

blackout drills, and one of the neighbors

would be assigned on a volunteer

basis to make sure that everything was

blacked out. This was during the war

when there was some threat that

enemy bombers might be coming over

our country. And then during the Cold

War that followed that, every public

building you went into would have literature

telling you how to produce a

fallout shelter, how to improvise one in

your basement if you hadn’t built one

outside, the kind of food to store. It

was available for sale at many places.

How much water you needed. They had

pictures of the fallout shelter and the

beds and so forth and how you would

make due there for the several days to

a couple of weeks. And they made

available monitoring equipment so

that you would know when it was safe

to go out when the radiation levels had

fallen down to where it was safe to go

out. So everybody—we practiced in

schools. At our workplaces we practiced.

And today there is essentially no

attention given to advising individuals,

businesses, churches, social clubs what

they can do individually and collectively,

and I will tell you that our

strength is going to be determined not

so much by our military, which is

going to be okay, but our strength as a

country is going to be determined by

what we have done individually as families,

as small communities to protect

ourselves so that we do not become immediately

a ward of the State.

And they asked Dr. Bill Graham what

he had personally done. He has a generator

which is not plugged in. Plug it in.

It’s hooked to the electrical system.

It’s a long line, effective, a big antenna.

It’s much more likely to be

damaged if it’s plugged in. With 200

kilovolts per meter, by the way, it’s

probably all gone anyhow. But if it’s a

lesser intense weapon than that, not

plugging in it would make a difference.

He has food and water for several days.

The average city has 3 days supply of

food, 3 days supply of food. And I noted

in the hearing today that if in anticipation

of this, a year or 2 before and

even a decade because this food, nitrogen

packed and freeze dried, will last a

very long time, then you are a patriot

because now you’re stimulating the

economy. But if you wait until the hurricane

is at the door or the missile attack

is imminent and you do exactly

the same thing, now you’re a horder.

Have you thought about that difference?

You’ve done exactly the same

thing. You put away food and water

and essentials for survival. If you do it

well ahead of the event, now you’re a

patriot, doing the right thing. If you do

it immediately before the event, now

you’ve become a horder. And nobody

likes a horder.

The Department of Homeland Security

also needs to develop a plan to

help citizens deal with such an attack

should it occur. This is not me saying

that. It is the EMP Commission saying

that. Citizens need to become as selfsufficient

as possible. And they note

something which is really very important.

There are a number of things, a

Hurricane Katrina, almost nobody

there had made any preparation for

this. And with hours they now were dependent

on services from a government

that wasn’t there, that couldn’t get

there. And the Federal Government

will tell you don’t count on us for at

least 72 hours. You need to be on your

own. And I think that the really wise

thing to do would be to be prepared for

several days to several weeks. And

there are any number of natural events

or human-caused events that could result.

Suppose it was a major strike. Oil

is now 141 or so dollars a barrel, gas is

over $4 a gallon, diesel nearly $5 a gallon.

At some point the trucker may decide

enough is enough, we quit, in protest,

you’ve got to do something about

this. A 3-day supply of food in the

stores. Wouldn’t it be nice if you had a

meaningful supply in your home so

there are a number of storms that you

could weather in addition to this one?

Citizens need to become as self-sufficient

as possible.

Well, I have been concerned about

electromagnetic pulse now for a number

of years. I am very pleased that we

were able to get this commission set

up. I am really pleased with the quality

of the commission and what they have

been able to do. And now we are extending

it. We have already passed the

bill in the House here. We’re extending

it now for 4 more years, to 2012, and I

look forward to the commission’s being

active. And this is really very stimulating

and challenging, and meeting a

big challenge like this and overcoming

it is exhilarating. And I will tell you,

rather than watching silly programs on

television, the family would be much

better rewarded and would feel better if

they would sit down and say what can

we do to prepare for this? Because our

country is going to be stronger if I am

self-sufficient and maybe I have

enough to help somebody else, so that

I’m not a ward of the State. And I hope

that your government—the Homeland

Security is the right place to look—is

going to become more active in telling

you what you need to do. But if they

don’t, go back and look at the advice

given during the Cold War. What we

were encouraged to do then, what we

did then is precisely the kind of thing

we need to do now. Now, there was lots

of preparation. There were fallout shelters

that would accommodate hundreds

of people. If you went to Switzerland, if

you go today, you will find that all of

Switzerland can go underground with

enough food and water to last them for

quite a while. Now, we never had that

level of preparedness, but we were

enormously better prepared then than

we are now.

Well, Madam Speaker, I am pleased

for this opportunity to talk about this

very important subject, and I hope that

we become less and less vulnerable,

which will reduce the threat more and

more.