Thank you very much. We can all agree that we

do not want to see Iran with nuclear weapons, or even with a nuclear-

weapons capability.

I would like to focus my oral testimony on certain aspects of

Iran’s uranium enrichment program, to have a more technical discussion.

My written testimony is more detailed, and the ISIS Web

site has a considerable amount of information on Iran’s nuclear

program.

I would like to focus on a set of questions that committee staff

gave me. Perhaps one of the most frequently asked questions about

Iran’s nuclear program is whether Iran is competent in operating

centrifuges. There have been many reports in the media that they

can’t operate centrifuges, there have been reports that they can operate

them well.

Unfortunately, the question is difficult to answer. Iran is under

no obligation to inform the International Atomic Energy Agency

about such matters, and has chosen not to do so. It is also important

to realize that Iran is unlikely to ever operate its gas centrifuge

plant like the European gas centrifuge consortium,

URENCO. And so when people ask the question, Has Iran gained

mastery of gas centrifuges? you have to ask, What do you mean by

mastery?

The most important aspect of this question is whether Iran has

achieved adequate competence in the operation individually and in

groups of what are called P–1 gas centrifuge cascades. And the

focus is particularly on 164 machine cascade, which is the workhorse

of the Iranian program.

Iran appears to be able to make all the centrifuge components for

the P–1. I think a couple years ago that was still at issue, but currently

Iran is assessed as being able to make all components. It is

also gaining valuable experience in operating cascades, but it still

for some reason has not operated these cascades continuously. And

frankly, it is rather perplexing why.

If it is ever going to enrich uranium on a significant scale, it is

going to have to run its cascades more than what we would estimate

as perhaps 5 hours a day, on average. I mean, cascades aren’t

operated that way, but it just gives you a flavor of how these cascades

are not operating anywhere near 24 hours a day, which is

what you want.

Now, why is that? And frankly, there is a range of opinion. And

these opinions are shared at the International Atomic Energy

Agency.

One is certainly that they are just having technical problems, although

I don’t think that is the most likely answer. Another is that

it is deliberately slowing down its program in order not to alarm

the international community; that it is calculating that it will move

slower in order to, in the long run, gain more progress, albeit at

a slower rate. Another is that it is already competent at enriching

uranium continuously in cascades, but it is simply choosing to hide

that from the inspectors and the rest of the world.

An unanswered question is just how much assistance did Iran

get from the A.Q. Khan network. Was it also provided with expertise

in operating centrifuges?

And then the final one is just that Iran is implementing its own

plan for cascade installation, that includes its own method to become

proficient, according to its own timetable, and it has simply

chosen not to share that with the IAEA or the outside world. So

I must say we are left with a rather wide range of possibilities.

But at some point Iran is going to have to play its hand. It is

putting in place up to 3,000 centrifuges in the underground facility,

and it is going to have to either start to operate these centrifuges,

or start to actually look like it cannot do so.

But I would say that our bottom-line assessment at ISIS is that

Iran is becoming more competent at running centrifuge cascades,

but it has not yet demonstrated what one would call mastery or

full competence.

However, we are also asked, How long will it be before they are

competent? And it is a very difficult question to answer, but I

would certainly say that by the middle of this year that Iran, even

if it were having technical problems, could be competent at running

its basic cascade.

Another question is: Is Iran likely to finish its first module, as

they call it, in May 2007? You are all aware that Ahmadinejad has

made a commitment to finish this 3,000-centrifuge module by the

end of May. Most are skeptical that Iran can finish installing 3,000

centrifuges in that timeframe, let alone getting them all to enrich

uranium. It needs to install about one cascade a week in order to

meet that schedule.

Now, between the middle of January and the middle of February,

it essentially met that schedule. So I would not dismiss Iran being

able to meet a pretty rapid installation schedule. But still, remain

frankly skeptical that they could get all those machines up and

running. And I would estimate that they are going to need several

more months to a year to get this module fully operational.

And I think you have all heard all the estimates that are out in

the public, that once such a large number of centrifuges are operational,

that they could use those centrifuges to make enough highly

enriched uranium for a bomb in 6 to 12 months; it just depends

on how well it would operate. This estimate assumes, of course,

that Iran decides to take this path of producing highly enriched

uranium. If it did, it would certainly be seen as violating all its

commitments, and tantamount to seeking nuclear weapons.

So again, probably the more likely option is Iran would produce

low enriched uranium in that cascade for some period, and try to

stockpile its low enriched uranium, and achieve what we would call

a break-out scenario: That in a fairly rapid period of time, it could

enrich further the low enriched uranium to weapon grade, and

achieve a nuclear weapon status rather rapidly.

So I think our assessments at ISIS are still that the worst case

is that in 2009, Iran could have several thousand centrifuges operating,

and have enough highly enriched uranium for a nuclear

weapon.

There is still quite a bit uncertainty of that in that estimate, and

we can see many ways that it could be delayed, and our estimate

would become more in line with the standard estimates you hear,

that we publicly reported from the U.S. intelligence community of

no sooner than 2010 to 2015.

But if Iran does make faster progress in getting this first module

to operate, then I think we are going to have to all re-look at our

estimates.

The final question is whether the IAEA is capable of monitoring

Iran’s nuclear program. And I would say yes, if Iran implemented

the additional protocol, including the additional transparency

measures that have been requested by the IAEA.

However, Iran is doing neither, which explains the IAEA’s recent

statement in its safeguards report on Iran that it will no longer be

able to provide assurances about the absence of undeclared Iranian

nuclear facilities or activities. Which means another concern is that

if the IAEA can’t provide assurances about undeclared activities,

we don’t actually know if Iran is building a secret gas centrifuge

plant.

It is unlikely, I believe it is unlikely they are doing that now,

given the amount of resources it is taking them to put together this

module in the underground site at Natanz. But in the future it becomes

more worrisome, particularly if they develop this module and

they are looking at a break-out scenario where they would want to

take the low enriched uranium and turn it into highly enriched

uranium. And they could do that at a secret site, which we would

know nothing about. All we would know is that low enriched uranium

has gone missing.

I would like to say that despite these limitations, the IAEA remains

the best source of information on Iran’s nuclear program. Its

inspectors, even with limited access to people and places, are on

the ground on a regular basis, and are well qualified to assess the

Iranian program. The IAEA has people who have worked at

URENCO; in fact, they have one person who was involved in developing

some of the very same centrifuges that Iran is now building.

He was working in the Netherlands in the 1970s, at the time when

A.Q. Khan stole these designs from the Netherlands, and ultimately

they ended up in the hands of Iran.

Also, intelligence assessments based on other non-IAEA information

are more limited, and should be viewed with some skepticism,

in light of past failures in Iraq and elsewhere. And so I would like

to end my testimony by just saying that I think we all need to be

very vigilant, and I would commend this committee for holding this

hearing, we need to be more vigilant about the possible assessments

that could either exaggerate or simply be wrong about the

Iranian program. And I think we need a full fair and unclassified

debate about Iran’s nuclear capabilities, and ways to deal with that

threat.

Thank you very much.

The main system that we think they would depend

on is the ballistic missile, and the Shahib-3 in particular.

A key question is whether Iran can build a warhead sufficiently

small to fit on that missile. There is also an outstanding question:

Did the A.Q. Khan network provide Iran with more advanced nuclear

warhead designs?

Well, I don’t want to judge it. I think there are

a lot of gaps in it.

No, there are gaps, certainly there are gaps in it.

And I think it is very hard to overcome those gaps with human intelligence.

It is hard to do that.

Our worst-case assessment is still that in 2009

they could have enough highly enriched uranium for a nuclear

weapon. We can see lots of ways that that estimate could get

pushed back.

It could be. The point of the sanctions isn’t to stop

directly the nuclear weapons program; it is to——

Well, I can’t predict the future. I mean, what I

can give is an example of South Africa, where it got pretty hairy.

I mean, South Africa had sanctions put on it in——

I am sorry?

But only after years of sanctions.

And I think that you have to be realistic about

Iran. There is no magic bullet. But I would still say that pursuing

that route has a much better chance of working than other routes.

Iran has a supply of components for P–1, probably

several thousand in hand. It is hard to know the exact number.

They do, from our information, they do go out and seek things.

I mean, valves. That has even been written about in the resolution.

We have seen that many times, where trading companies are trying

to acquire different types of valves from European suppliers.

Sometimes in lots of, I saw one that was in a lot of 150,000.

And the P–1 has three fast-acting valves attached to it. I won’t

go into the technical details, but the cascades need a lot of valves.

And my understanding is they can’t make those themselves, along

with other things. And so they are dependent on foreign supply.

The catch is that they have been at this a long time, and they

have a certain amount stockpiled. And I think it is enough to put

together several thousand centrifuges, which give them a nuclear

weapons capability. But it is by no means enough to build these

50,000 centrifuges they want to build in Natanz.

In terms of the loophole, I don’t see the Bushehr loophole as a

loophole. I am disappointed. I mean, I was kind of frankly surprised,

given everything that has gone on, that that was written in

there. But I understand it was a price to get the Russians on

board.

Now, suppliers are working better now. And I mean both in

terms of companies, and then supplier countries, to try to limit

Iran’s acquisition of items. In fact, that is part of our involvement

with some companies, is to discourage what we would call illicit nuclear

trade, and those companies being hoodwinked. It is a very sophisticated

set of operations that countries like Iran mount to get

these items.

One of the advantages of the Security Council Resolution is it

sends a message to other states that they should be doing more,

particularly states where Iran may set up a trading company, and

that don’t have good export controls or knowledge of how illicit

trade works. So I think in general, the Security Council Resolution

is a net benefit to try and keep Iran from getting dual-use items.

But it is a cat-and-mouse game and you have got to keep at it.

And it is not foolproof. So Iran is going to continue to successfully

get some things, even though quite a few things are being stopped

from getting to Iran.

They want 50,000. Which is enough, frankly is

enough for a civil nuclear program. I see that as a civil nuclear program.

It is ironic, maybe I should use the word it is tragic. You get

the capability for a nuclear weapons program far before you get the

capability for a civil nuclear energy program.

I am not an expert in missiles, but I think it is

well known that Iran’s delivery system of choice would probably be

a Shahib-3 missile. Its range depends on its payload. Certainly

Israel is within sights.

And I am sure that eventually they will be able

to deliver some kind of warhead into Europe. From what I understand,

they are certainly working in that direction.

The catch for them is can they put a nuclear warhead on that

kind of missile. And I think that is still an open question. Very little

is known about their nuclear weaponization program, as we

would call it.

And I mentioned this earlier. This question also adds urgency to

knowing what Khan provided, because it could be that Khan provided

more advanced nuclear warhead designs than have been admitted

to. And so that question remains open and needs an answer.

Let me add one thing. I think their information

has become much less credible over the last couple of years. And

I think it is due to the fact that they do have a very heavy agenda.

Heavy agenda. And so for example, they have

claimed that Pakistan sold highly enriched uranium to Iran. There

is no basis for that claim. They have claimed that there are all

kinds of enrichment plants. There has been no evidence to support

that either.

They certainly, in the early years, identified nuclear facilities. I

mean, they misidentified Natanz, so their intelligence isn’t by any

means perfect. They called it a fuel fabrication plant. Their importance

was that they identified two secret nuclear sites, and that

started a chain of events. And I would never want to underplay the

importance of that.

But I know we have, in fact, used their information from the

start. And we have found that particularly in the last couple years,

that it has largely been unusable, and often just flat-out wrong,

when you check it out. And driven by an agenda, that is they want

the regime in Iran changed. And it has made us feel that we can

no longer trust what they put out.

Yes, I don’t think they are that worried about it.

I think it has been overplayed. I would say take it off the table.

It can always be brought back, but I think it has just been overplayed.

Well, it would be taken on or off by the President,

not by legislation.

Yes. Well, but anyway, let me just finish the

point. Because it has come up since 2002.

I remember when we released satellite imagery of the Natanz

site back in December 2002. We were the first ones to do it. We

were actually the first ones to correctly identify publicly that

Natanz was a gas centrifuge plant.

We did it in conjunction with CNN. CNN went to a senior administration

official’s office and said, ‘‘What are your comments; this

is a serious problem? Iran will not let the IAEA come in and look

at this site; what are you going to do?’’ They said, ‘‘Well, when we

get to Baghdad, we are turning right.’’

And so we saw—and then if you just follow through that, what

we see——

Than after, that is right.

But it has continued to be put out there. And

what I have witnessed, in following this issue and following Iran,

is that it has led to a nationalist call in Iran that has actually

backfired on us.

And so I think that the military option is too often put on the

table, and put in the Iranians’ face, and it has backfired. And I

think the administration should simply withdraw from mentioning

it for some period of time.

Yes, but against the opinion of the American public

and military leaders. So I think it is not credible.

That is right.