



2013 Carnegie International Nuclear Policy Conference: Luncheon Keynote

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Speakers:

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MATTHEW WALD: Good afternoon, everyone. I'm here to give you all indigestion. We've had an interesting morning; we're going to have an interesting afternoon.

Our luncheon speaker is Dr. Allison Macfarlane, who has been chairman of the Nuclear Regulatory Commission since last July. The president recently announced he was nominating Dr. Macfarlane for a full term. And she was explaining to me over lunch that if Congress doesn't act by June 30th, she turns into a pumpkin, but we trust the Senate will get its act together.

Dr. Macfarlane is a geologist. She is the first geologist at the Nuclear Regulatory Commission. This is completely appropriate since a lot of the problems facing the industry right now are geological. In the business, the nuclear business, people say you know you're in trouble especially when the specialist they call in is in geochemistry. (Laughter.) The nuclear field is learning about new branches of science it wishes it did not have to deal with.

Dr. Macfarlane comes to the NRC from George Mason University and before that from MIT and actually more importantly from the Blue Ribbon Commission on America's Nuclear Future, which was convened after the Obama administration pulled the plug on Yucca Mountain as a study commissioned to figure out what to do next. And I'm sure we'll get into that in the Q&A session. And without further ado, she will have some opening remarks, I'll ask some questions, and then we'll turn the audience loose. Thank you.

(Applause.)

ALLISON MACFARLANE: Thanks, Matt. Thank you very much.

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OK, so it's an honor to be here today and a pleasure. For many years, I have attended this conference, and having the opportunity to stand on this side of the microphone is indeed a true pleasure. So, I thank you very much for the invitation, guys. And it's also a real pleasure because I have so many friends in the audience and it's really wonderful to see you all. This is a fantastic opportunity every couple years to get together and have discussions about very important issues around nonproliferation, et cetera.

As always, the agenda for this year's conference reflects a number of timely and very significant topics – many of course related to nonproliferation. It's been very interesting for me to come to the NRC which plays a very important role in fulfilling U.S. nonproliferation objectives through various aspects of its mission. As you're well aware, since the 2010 NPT review conference, there's been renewed emphasis on ensuring a mutually reinforcing balance between the three pillars of the NPT: nonproliferation, disarmament and peaceful uses of nuclear technology.

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Today I'd like to touch on the important role of regulators in ensuring safe and secure use of nuclear materials thereby supporting the peaceful use of these materials. The benefits of nuclear technology are far-reaching. Although it's important to remember that although proliferation concerns with nuclear power get a lot of attention, other peaceful uses of nuclear materials in commercial enterprise, in medicine and in academia provide important societal benefits.

The civilian nuclear landscape has the potential to change considerably in the coming years. Some countries, as you know, are seeking to expand small, existing nuclear power programs. Others are developed countries that have identified a need to diversify their energy mix. Still others, which the IAEA says have expressed at least some interest in nuclear power, still have significant work ahead to establish the basic critical infrastructure. And of course the advent of small, modular reactor designs could lead to the introduction of nuclear power in places with small or regional grids that may not otherwise have considered it.

The development of any major new technological advancement can come with competing or conflicting objectives. Nuclear technology can improve people's health and livelihood, as we know. It's therefore understandable that governments would want to put access to these technologies on the fast track. However, if these goals outpace the development of regulatory controls, safety, security and environmental protection are jeopardized.

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It's essential that we emphasize the responsibilities to accompany the right to use nuclear technology for peaceful purposes. Regulatory bodies like the Nuclear Regulatory Commission have a critical role to play in this discussion, which is inextricably linked to the peaceful uses – commitments under the nonproliferation treaty.

Regulators provide a critical function in the global nonproliferation regime by ensuring the safe and secure use of nuclear materials and technology. We need to do more to dispel the notion that regulatory controls are a bureaucratic impediment designed to limit or hinder rightful access to peaceful uses when actually the opposite is true.

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For instance, strong and effective regulatory controls enhance the efficiency with which nuclear materials can be safely and securely used. A lack of export controls can delay shipments of nuclear materials in reaching their destinations or allow them to fall into the wrong hands.

Absent regulatory oversight of nuclear power plant construction, the final product may not adhere to the codes and standards necessary to ensure that a plant is constructed and operated safely, and failure to provide proper training to medical technicians can lead to patient or worker overexposures.

Each of these scenarios not only impacts access to peaceful uses of nuclear technology but has security and nonproliferation implications as well, and to that end, I believe regulators must play a significant role in the NPT community. Regulatory perspectives must be part of a broader government nuclear security, safety and nonproliferation policy decision-making. The highest levels of government must make nuclear safety and security a priority – everywhere. Regulators must have confidence that their decisions will be given due weight by country leadership while preserving their independence – something I will touch on more in a moment.

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This is a key element in ensuring that these issues maintain a direct connection to the broader nonproliferation regime and that the rights and responsibilities associated with peaceful uses are duly considered and well-understood.

Many countries with established regulatory programs are already in a position to increase their involvement in these important discussions. For countries embarking on new programs, we have an obligation to provide insights about the regulatory development necessary to make that program safe, secure and successful.

All countries that wish to use nuclear technology for commercial purposes must develop the appropriate infrastructure to ensure the safety and security of their program. This includes a strong, independent, well-funded regulatory body.

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For countries considering nuclear power, responsible development also includes an industry that is responsible for first-line safety and security, recognizing the importance of quality assurance in all aspects of a plant's construction and operation.

On a related note, I believe that all countries considering nuclear power need to consider the ultimate disposal of their nuclear waste at the beginning of their planning, with a clearly defined strategy for waste management and disposal integrated into the licensing process. In addition, the establishment or expansion of a nuclear power program must include input from all interested parties in a transparent and open dialogue.

Within the regulatory community, we have networks available for emerging countries to receive the assistance necessary to establish an effective regulatory infrastructure, thereby facilitating their safe and secure use of nuclear materials and technology. We also work together with emerging countries to ensure that they have a common understanding of their obligations related to importing and exporting nuclear materials, so that these materials are appropriately protected.

In the United States, the NRC plays an important role in implementing U.S. government nonproliferation objectives. We apply IAEA safeguards at our licensed facilities, we maintain a robust security program at all the facilities, and we are responsible for the license – for licensing the import and export of nuclear materials and technology for civilian use.

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We are also actively engaged internationally with our regulatory counterparts, providing bilateral and multilateral assistance to emerging countries. In fact, after I'm finished here today, I'm flying to a conference in Ottawa to meet with my international regulatory counterparts.

The NRC's international engagement plays a significant role in informing our work. There's a lot to learn from what others are already doing. This has proven – been proven to us time and again, particularly in the area of operating experience. Conferences like this are also important for the same reason, and I just want to note that there are quite a few folks from the NRC attending this conference, and I see a table full of them over here. (Laughter.) Regulatory bodies provide an

essential perspective in the global nonproliferation discourse. It's the absence of regulatory controls that impede access to peaceful uses of nuclear technology, not the other way around.

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The more we are able to advance that message, the greater the chances will be that nuclear materials are being used safely and securely worldwide. This in turn will contribute to continued successful implementation of the NPT.

I'm thankful for the opportunity to share these thoughts with you today, and now I'm looking forward to my discussion with Matt and my discussion with the rest of you. So thank you. (Applause.)

MR. WALD: Thank you.

Dr. Macfarlane, you talked about a strong, independent, well-funded nuclear regulator. You're now running on 94.9 percent of your budget; the rest is sequestered. I'd like to ask about – two questions. One is what we can expect from nuclear power wannabe countries with less mature political systems. After Fukushima, where we had an advanced industrial society with a mature government that seemed to confuse the policy goal of heavy use of nuclear power with a safety goal, if they can't get it straight, what do we hope for from Third World countries that may want to go out and buy a modular reactor or a full-scale reactor, where they have no background in this kind of regulation?

MS. MACFARLANE: Well, as I said, that's why I made these remarks, to really emphasize the importance of a well-funded, government-backed, independent regulator. And I just want to note again that there are quite a few assistance programs – bilateral assistance programs, multilateral assistance programs, assistance programs through the IAEA – that are available to help countries establish a good, independent regulator. And I think that's – I think we're seeing that in action a number of places.

MR. WALD: OK. Let me ask about the United States, where we are hoping to build modular reactors and export them, and I hear the manufacturers say that one of the benefits is the NRC approval is the gold standard. Is the export product becoming regulation? Can NRC regulations become an American export product?

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MS. MACFARLANE: I don't know that it's an American export product. I think, you know, certainly we work with a number of other countries and provide assistance to a number of other countries, but we have a model, a particular model, but I think other established nuclear countries' regulators also adhere to the similar principles that we do: that you have government buy-in to safety and security as top priorities; that you have a body that is backed by the government; that you have a body that is free from undue influence from industry and the government, whoever's regulated; that you have a body that is well-funded and well-staffed. And I think you find that in many locations.

MR. WALD: In the early days of nuclear power, the United States exercised great influence because there was U.S.-origin nuclear material, there was U.S.-origin technology. The United States no longer dominates those markets the way it used to. Will the United States – how can the United States continue to be a player in technology questions, nonproliferation questions, as its role in international nuclear commerce declines?

MS. MACFARLANE: I don't think it's just the commerce piece of it that bears on the U.S. participation in these discussions. I mean, I think the U.S. will always be an important player in these discussions. And I don't – I can't really comment too much on the commerce piece of it. It's not – it's not part of our business. But we certainly have a lot of work at the NRC, you know, dealing with import-export, dealing with material security at the facilities that we regulate. So there is – I think the U.S. still has a big piece of it.

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MR. WALD: Do you run into this issue that if it's a piece of business an American supplier is seeking to do with a foreign country, if we don't do it, someone else will, someone with yet weaker controls?

MS. MACFARLANE: You know, that's a concern. But we – you know, we try to emphasize that it's important to have these controls, that they – as I said, they certainly advance progress in a lot of these relationships, not impede it.

MR. WALD: Let me ask you – something else you talked about is that countries that want to go into nuclear power should, from the outset, be thinking about how they will dispose of the – of the spent fuel. Is this a case of, do as I say, not as I do? (Laughter.)

MS. MACFARLANE: I think – not at all. You know – (laughter) – the U.S. has actually been engaged in dealing with disposal of high-level nuclear waste, and all nuclear waste, actually, for many years. Since the late '60s, really, there's been sort of an active program. So we have a long and rich history – (laughter) – as you know, in dealing with many of these issues. And I do want to also point out that the U.S. is the only country in the world that actually has an operating deep geologic repository. It's not for high-level waste, but it is for – transuranic waste, but it is a deep geologic repository. So we're the only country with that actual experience.

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MR. WALD: Do we have – we have a long history – a long, rich history, as you say, but it hasn't moved the ball too far forward on spent fuel. Do we have anything to learn from other countries on this?

MS. MACFARLANE: Yeah, certainly, I think we do. And here I speak as a former blue ribbon commission member. I had the opportunity, on the blue ribbon commission, to travel to a variety of countries – Sweden, Finland, France, Japan, the U.K. – and look at what they're doing and what they're thinking about. We – I'd say the blue ribbon commission learned a lot of lessons from looking at other folks and what they're doing and codified those lessons into the report that we issued.

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MR. WALD: What is your impression of the impact of that report, the progress we've made towards either implementing those recommendations or finding substitutes to move the ball forward?

MS. MACFARLANE: I think that, you know, the administration came out with a strategy. I know there's activity in the Senate. We'll probably be hearing from them soon on this issue. And certainly I think the onus now is on Congress and the administration to move forward. And I hope they do with all great good speed.

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MR. WALD: And apart from that, the Nuclear Regulatory Commission has a proceeding going forward to reform its waste confidence proceeding, which means what – how will the United States continue to do business without a repository. Can you tell us exactly what that means and how that's progressing?

MS. MACFARLANE: Sure. So last June – I think it was the D.C. Circuit Court of Appeals handed out a decision which remanded three parts of the NRC's waste confidence decision. It said that we needed to go and think about what would happen in the case of spent fuel pool fires and spent fuel pool leaks and what would happen in the case of no repository being available. And –

MR. WALD: Which is more than a possibility; it's – for the near term, it's a certainty.

MS. MACFARLANE: Well, there is no repository available right now; that is correct. (Laughter.) I remain optimistic that there will be, but that's just my personal view. I think then, we at the commission looked at this and decided not to appeal the issue and – but to work quickly to resolve this – these three issues in particular. And so we established – we took a number of staff, set them aside into a waste confidence directorate and said: You're only working on this for the next two years.

And so we asked that they do this within two years. So by September – so 2014, we should have a final issued waste confidence decision and rule. And they are working diligently. We are on schedule to do this. In the meantime, we at the commission said that licensing activities and relicensing activities can continue, but that no final licenses or license extensions can be given until the waste confidence decision is resolved.

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MR. WALD: Before the blue ribbon commission, you were an advocate for the idea of greater use of dry casks, of perhaps unloading the spent fuel pools to lower the level of risk and to move more of the fuel into casks to reduce the risk of accident, the risk of attack, et cetera. The proceeding you've just described is, among other things I would imagine, to determine that dry casks can be safe for decades to come. When that's behind us, should we be moving things more rapidly into dry casks or should we use the industry's current practice, as other countries look to us for our practice, to fill the spent fuel pools as much as they will safely hold and move things out of them only as absolutely essential?

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MS. MACFARLANE: You know, at the NRC this is actually an active area of study now. And you know, as – after the Fukushima accident, we had a near-term task force who issued a report within three months which had 12 overarching recommendations. The commission prioritized those recommendations into three tiers. And this particular issue occupies some of the tier three activities. And the commission is going to begin to look at this, the staff are going to begin to look at this issue and see what the – you know, what the boundaries are on it. And so this is something that's an active area of research for us.

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MR. WALD: Let me shift gears slightly. I have the distinction of working for The New York Times, one of the first agencies publicly hacked by the People's Liberation Army. And I'd like to ask about nuclear plants and cyberthreats. How do you know when a reactor is protected adequately? This is such a fast-moving field, it takes the NRC years to get regulation out the door. How do you know when you're looking at the computers on – at reactor or other nuclear facility, whether they are secure enough?

MS. MACFARLANE: Well, first you should realize that the computers at a nuclear reactor are not connected to the Internet, OK? So hopefully that will give you some sense of calm. But actually, the NRC, in 2009, issued a cybersecurity rule for power reactors. And the final implementation of this rule will occur somewhere between 2014 and 2017, depending on particular outage plans of different reactors. Nonetheless, there were basically eight steps that they had to work through.

These plants had – have worked through seven of those steps. And they were to complete those seven steps by the end of past December, 2012. And we are now in the process of inspecting what they've done. So we have been thinking through this. And so we also have a cybersecurity team dedicated to anticipating new issues as they come along. So we're taking this very seriously, and now we have developed, just very recently, a road map for fuel cycle facilities, dealing with cybersecurity issues for research and test reactors, for byproduct materials licensees, for this set of folks as well.

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MR. WALD: So this is a six-to-eight-year implementation period. Cybersecurity is – a lot of it's done –

MR. MACFARLANE: We're – a lot of it's – reactors have – is done.

MR. WALD: Well, that's done. But at the end of eight years – in the computer field, it's hard to imagine a standard set eight years ago would still be valid.

MS. MACFARLANE: (No, I agree. ?)

MR. WALD: Is this like checking boxes, you've done this, that and the other thing? Or are you putting processes in place?

MS. MACFARLANE: Putting – both. Both.

MR. WALD: OK. All right. May I ask what the eighth that they're still working on is?

MS. MACFARLANE: You know, to be honest with you, right now I don't recall. It's a more complicated, longer-term issue that requires more information before they are able to implement it.

[00:26:14]

MR. WALD: OK. One more question, and then we'll go to the audience, which is we have a group of American – numerous American manufacturing competitors who would like to build small modular reactors. My theory is these are not really designed for the American market; they're designed for export. They say, no, no, we'll sell them here, but we'll see. Is the widespread adoption of small modular reactors around the world, especially in countries that don't have nuclear reactors now – is this positive for proliferation, negative for proliferation, neutral for proliferation? And how is it for safety?

MS. MACFARLANE: You know, not my job to evaluate some of these questions. But – (laughter) –

MR. WALD: But you're going to license – you're going to license the designs.

MS. MACFARLANE: We will – we will issue a design certification if and when we get applications. We are expecting the first application summer of 2014 from the B&W mPower one that was funded by the DOE. Certainly, you know, on the trade side of this, selling to other countries, the 123 Agreement has to be in place before that happens. That's outside of NRC's realm, of course. Our job is to ensure that these reactors could operate safely and securely under the conditions required for the U.S., so that means in terms of security requirements that we require of all power plants in the U.S. and safety requirements for all power plants in the U.S.

MR. WALD: I wonder – you know, if Boeing goes out and sells an airplane to some small airline in the third world, it's very concerned whether that airline is going to fly it correctly or crash it, which would be a black mark against that airline but also against Boeing. You, of course, are not going to build these reactors; you're simply going to license them. Should we be looking at this with any sense of anxiety that we're exporting – we're hoping to export a new class of product that's a little more complicated to run and keep safe?

MS. MACFARLANE: Well, I don't know that it's – that these things would necessarily inherently be more complicated to run than a regular power reactor of the large, extra-large size.

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MR. WALD: That's absolutely correct, but we'd be exporting them to places – we'll be – we're exporting them to places that have no reactors at all, or at least that's the manufacturer's goal.

MS. MACFARLANE: And that's why – I'm glad you brought us full circle back. That's why it's really important, before you embark on any kind of nuclear program, to have established a regulator that is indigenous, that is backed by the government, that's well-funded and independent.

MR. WALD: OK. Very good. I think there's microphones floating around the room. All I can see is lights. OK, in the back here, the lady with her hand up.

Q: Jessica Varnum from the Monterey Institute of International Studies. Thank you for your remarks. I'm very interested in what you were talking about with regard to the NRC's outreach to nuclear newcomers. I teach, actually, nuclear energy issues to a number of students who are often from nuclear newcomer countries.

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And so one of the discussions we have is how is the U.S. involved in this nuclear market, and usually there isn't a sense on the part of students from these countries that the U.S. is a player. And I'm curious if you've encountered problems in best practice sharing efforts with countries where we don't have industry involvement as well. So UAE is an obvious country where we have part of that contract with South Korea, and so I could imagine that if – a lot of interaction going on between NRC and them.

But, you know, like Turkey, where there is, essentially, an entirely Russian driven-contract – other countries that don't have any involvement with U.S. industry – how do you do that kind of outreach to those countries? Is it generally welcomed? And just in general, what are some of the challenges that need to be overcome for us to be more effective in these partnerships?

MS. MACFARLANE: Great. Good question. You know, let me – let me first be clear that we're not industry. We're the regulator. So we have a specific role that is not industry's role, and therefore – you know, and there are other parts of the U.S. federal government which would have other kinds of relationships – the Department of Energy, the – you know, parts of the administration, et cetera. So (sweeping ?) that aside, on the regulatory side, I do meet with counterparts from – my counterparts from other countries on a regular basis in bilateral meetings.

For instance, recently I met with the Turkish regulator. I also meet with the Russian regulator and discuss issues. So that's one way I personally can have – and my fellow commissioners can have direct conversations with these folks and exchanges. We also have a number of programs – assistance programs that – where the NRC provides assistance to emerging countries.

There are other programs like the multinational design evaluation program. Turkey's not a member of that now, but in the future, could be. It's – this is a group who get together and discuss new reactor issues. So there's an AP1000 group where you have – and this is just for regulators – where the regulators from the U.S., from China, from other countries interested in building AP1000s get together and discuss issues with construction and operation of these plants.

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So there are a variety of different – we also work on the multilateral level at – through the IAEA and a number of other programs like that. So there's a – there's a variety of ways that we actually do engage quite frequently.

MR. WALD: If I could ask you to elaborate – it sounds like you’re doing peer-to-peer consultation at the top. Do you – do you send inspectors on exchange visits? Do you send –

MS. MACFARLANE: We do. And we have exchange programs where we host inspectors or staff – regulatory staff from other countries. We send our staff to other countries. So there’s those kinds of programs too. There is actually quite a lot of work on the international side. And I think many of the NRC staff who are here today – and I think there’s 30 plus of them – are on the international side – I’m looking at them right now. (Laughs.)

MR. WALD: So do our guys ever defect to places where the nuclear picture is rosier or there’s no sequester? (Laughter.)

[00:32:59]

We have another question from the gentleman in the front here. Who’s got the – here comes the microphone behind you.

Q: It’s great to ask you a question from this side.

So I heard you talk a lot about assistance – about, you know, sharing and so on. I didn’t hear you use the word “evaluation,” right? So if you are thinking about a country, and it’s setting up a new nuclear and military commission, should you or the IAEA or somebody evaluate them? Because as you know, all this assistance is a sort of double-edged sword. On the one hand, it can improve them; it can also be used to sort of quell domestic opposition and so on.

MS. MACFARLANE: OK. Just to pick at you, Ramena (sp) I did say the word “evaluation” in “multinational evaluation.” (Laughter.)

Q: (Off mic.)

MS. MACFARLANE: But I understand your question, and it’s a good one. Unfortunately, there’s no real format for – you know, and I don’t think – I don’t think even you would approve of the NRC going around and evaluating other countries’ programs. And that’s why I think it’s more of a peer-to-peer discussion. The IAEA certainly sets standards for regulatory programs, and those – you know, it’s – we – no. I mean, there is – there is no way in which one can do that.

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Now, I know there are – some of my fellow regulators from other countries are concerned about this issue, and they would like there to be some way of, you know, having more of an impact on other countries’ regulators than saying, you know, well, you’re doing a good job, you’re doing a bad job. On the industry side, there is something more like that. There’s the World Association of Nuclear Operators, WANO, where the industries from these different countries, the nuclear industries, evaluate each other. And I know that they are really interested in engaging even further now with that kind of evaluation. And I think that would be very – very helpful. So there is some of that going on, but I think you’re right, we should all think more creatively about how we could do more.

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MR. WALD: Should we – should we follow on the nuclear side what, for instance, the U.S. Department of Transportation does? They will make a ruling about a foreign aviation regulator: you don't have the resources to regulate your airlines; you're not allowed to fly here anymore. And just the threat of that sometimes influences foreign governments to fund their regulators better. Of course –

MS. MACFARLANE: Nuclear power plants don't fly to other countries. (Laughs.)

MR. WALD: We hope not. We hope not. But would there be some equivalent that would be a good idea here?

MS. MACFARLANE: It's an interesting idea. I'm not sure exactly what the equivalent would be, but – you know. You always want to keep talking. You don't want to stop talking.

MR. WALD: Right. Right.

[00:35:45]

We had a question from over here.

Q: We've got one here.

MR. WALD: But we're going to – we're going to start over there. Thank you.

Q: Thank you. I'm Clark Roe (ph), formerly with the IAEA on the verification and security side. Thank you for your comments.

My question was, apparently one of the lessons of the Fukushima accident is to install filters on the vents of boiling water reactors. And I read in the media that the U.S. industry is opposed to it on the basis of cost. So I was wondering whether – what for you is the tradeoff between public safety and the cost to industry for adding on additional safety measures.

And as an aside, I was pleased to hear that you are going to my home country, Canada.

MS. MACFARLANE: (Inaudible.)

Q: This might not be in your background information, but Canada is the only country that fired its regulator. I don't want you to comment on that – (laughter) – but I thought you – just thought you ought to know since you made a big deal several times, which is what the IAEA does, as well, of having a fully funded and completely independent regulator and not to fire the regulator as such.

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MR. WALD: I will elaborate also that there was a split decision at the NRC over whether to require the filters, and Dr. Macfarlane was on the losing side.

MS. MACFARLANE: Yes. Thank you for reminding me. (Laughs.)

So in terms of the recent decision to filter – and you know, you sort of presented it as this is what all countries are doing; and not necessarily all countries are doing this. But let me just say that what the recent decision from the NRC – it was twofold, OK? Partly, there was a decision to issue an order to further harden vents. So we issued an order last March basically requiring hardened vents at all 31 boiling water reactors with Mark I and Mark II containment designs. And so these – now we have further enhanced that order, or we will within 60 days, by saying we want these vents to be able to operate under accident conditions, so at high temperatures, high pressures and under high radiation conditions.

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MR. WALD: And station blackout.

MS. MACFARLANE: Yeah. You have to be able to operate them under all of these conditions. And you – and this is an order. It will be issued.

The second piece of what the commission did recently was to basically require a rulemaking on filtering strategies and other strategies to either prevent or reduce the release or filter the release of contaminants from a containment in an accident scenario. So.

MR. WALD: We'll try the question over here. Who has the mic? Thank you.

I should say also, while the mike's going over there, that the outcome on vents is not clear. What the commission ended up doing was saying we won't require them just like that; we may end up requiring some later on.

Q: Thank you. My name is Julio Narano (ph). I am the vice chairman of the Nuclear Regulatory Authority of Argentina. So we are colleagues.

I have to say that I don't agree with the Canadian solution. (Laughter.) I say strongly I don't agree with that. But in the same – in the same way that the comment of the agency – the Canadian colleague, considering the Fukushima accident, the Fukushima lessons to be made and to have and made, and considering the interesting number of countries that are trying to achieve nuclear technology and nuclear power plants – which is good news, for instance – don't you think that we have to – maybe to make a strong commitment to share with other countries, with those new countries, about the importance of the independence of the regulatory body in terms of the promoter of the nuclear energy – I mean, maybe have (an X ?) country where I am achieving nuclear technology and maybe I am thinking more in the technology than in the institutional issues?

[00:40:14]

Don't you think that we have to assume that kind of commitment, maybe sharing with those new countries about the importance of the independence of regulatory bodies from the promoters, considering, with all due respect, the weaknesses of the Japanese regulatory body in these – in these – in these issues may be assumed by the young Japanese?

MS. MACFARLANE: Yeah, certainly, I think, you know, it's very important to separate the regulator from the promotional side. You know, in the U.S., our history is that we had the Atomic Energy Commission, which was both regulator and promoter, and it finally dawned on us in the 1970s that this was probably a bad idea. There is a conflict of interest. And certainly, now we very much encourage, at all levels of the U.S. government, other countries to follow that example and to keep very separate the regulator from the promoter.

MR. WALD: We've got time for just one more quick question. Go ahead.

[00:41:23]

Q: Bijan Khajepour. I'm from Iran. Thank you for your comments.

You know, we are at a juncture where in the Iranian nuclear negotiations, everyone is looking for confidence-building measures. I mean, the negotiations are stuck. And as a purely confidence-building measure, would you be prepared to meet with your Iranian counterparts, with the Iranian regulator?

MS. MACFARLANE: Well, I don't operate completely separately from the rest of my government, so I would have to take – (chuckles) – advice from them.

MR. WALD: Do we have time for one more? Are we – go ahead.

Q: (Name and affiliation inaudible.) I was a nuclear waste disposer. And my question is regarding Iran as well. In the case of Bushehr, you have a plant that's – based on the information coming from Iran – 30 percent German, 30 percent Iranian, 30 percent Russian. You spoke to quality assurance, dealing with construction, design and everything else. The danger that is taking place or that exists in my opinion, the risk that exists is probably higher than Fukushima or Chernobyl in this case, because really, since its start-up, three times it has been shut down, and they blame the German pumps and so on. There are just a number of issues that's involved.

Is there a way that the United States can participate, or at least, get involved in inspecting or helping IAEA to inspect this facility? Because the dangers are not only to the Iranian citizens, but the whole Persian Gulf; you're talking about Bahrain, Kuwait, Emirates and all of those other ones. It's an important issue. And matter of fact, there was an editorial printed in The New York Times regarding that just recently. So can you comment on that, please?

[00:43:11]

MS. MACFARLANE: You know, only to say that these kinds of inspections through the IAEA are very important. And there are a number of very high-quality regulatory bodies from different countries that are – you know, give advice, support to the IAEA. And the IAEA does an excellent job itself, so.

MR. WALD: Should the Iranians be let into WANO, the World Association of Nuclear Operators?

MS. MACFARLANE: That's not my – (chuckles) – (place ?) –

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MR. WALD: Well, from a safety standpoint, would that be desirable?

MS. MACFARLANE: – to have a view. You know, WANO is for industry.

[00:43:50]

Q: Yes.

MS. MACFARLANE: So –

MR. PERKOVICH (?): (Off mic.) They are a member of WANO.

MR. WALD: They are a member of WANO. I stand corrected.

MS. MACFARLANE: There we go. Thanks, George.

MR. WALD: Thank you. OK.

All right, thank you all. I'm told we're about to transition to our next – our next speaker, next session. And thank you for your kind attention. (Applause.)

(END)