Steve O'Connor.

Our next speaker, Mr. Bill Brach. I've known Bill for 20 years and actually worked with him on a couple of occasions. During almost 40 years with the Nuclear Regulatory Commission and its predecessor, the Atomic Energy Commission, Bill has held management positions in almost all NRC program areas including reactors, materials, fuel facilities, waste management and decommissioning. He served two years as a senior State Department expert with the IAEA Indiana developing reactor safeguards inspection programs. He was a principle reviewer in a two year Congressionally mandated study here in the States on quality assurance for nuclear power plants and the design and construction.

Bill has served in multiple senior executive positions in the NRC office of Nuclear Reactor Regulation and the office of Nuclear Material Safety and Safeguards. He served as the director in the spent fuel storage and radioactive material transportation program for over 10 years until his retirement in January 2010. He currently serves as chairman of the IAEA transport safety standards committee, that's TRANSSC. And has been chairman of TRANSSC since January 2008. His term as chairman expires in December 2013. So we'll be looking forward to see what's next in Bill's illustrious career.

William Brach.

Good morning, everyone. Steve, thank you for the kind introduction. As Steve noted, Steve and I did work together in the NRC. It's been a few years ago, but Steve, it's always good to see you again.

I want to thank the organizers of Patram 2013 for inviting me to provide an overview of the International Atomic Energy Agency's transport safety standards committee, commonly referred to by its acronym TRANSSC. And also provide a brief overview of the IAEA safety standards program and the IAEA regulations for the safe transport of radioactive material. The transport regulations have been issued by the IAEA as specific safety regulation number 6. Also better known by its acronym, SSR-6.

I realize that some of you may know me from my previous work and experience in spent fuel storage and transportation at the U.S. Regulatory Commission, the NRC, and you may simply be wondering what am I doing standing up here and talking about the International Atomic Energy Agency. As Steve had noted, well, before I retired from the NRC and now for the past 5½ years I've had the pleasure to serve as chairman of the IAEA's transport safety standards committee. As Steve noted my term as chairman ends in December of this year. The IAEA will soon be selecting a new chairperson for the next three year term that begins in January of next year 2014.

In some of the plenary presentations and in many of the session presentations this week, you've heard numerous references to TRANSSC and to SSR-6. This morning there are five general topics I will discuss and provide some background information that hopefully will help you gain a better understanding of just what the transport safety standards committee, TRANSSC, what that committee is and what some of the responsibilities and activities of the TRANSSC committee are.

I'll then provide an overview of the IAEA safety standards program and structure that includes TRANSSC as one of the four safety standards committees. Next I'll discuss one very important role of TRANSSC and that is the periodic review and if deemed necessary the revision of the IAEA regulations for the safe transport of radioactive material. Again, that document is SSR-6.

Some of you may be more familiar with the previous acronym TS-R-1. The change to the new reference name and acronym SSR-6 began last year with the publication of the 2012 edition of the transport regulations. The interface that IAEA has with other united organizations in the area of transport is also very important, especially with regard to the harmonization of transport regulations.

I will discuss how the IAEA transport regulation SSR-6 is considered and incorporated more broadly into other United Nations organizations' transport

regulations. And finally, I'll discuss some of the near term and a few of the longer term activities coming before the TRANSSC committee and how some of this work may influence future considerations and/or changes to the international transport regulations SSR-6.

Now first, what is the Transport Safety Standards Committee? The committee is comprised of radioactive material transport experts from around the world. Every three years the IAEA invites the countries that are members of the IAEA to nominate a senior transport expert to represent their country on the TRANSSC committee. Typically the member state representative to TRANSSC is from the country's national transport regulatory agency. In many instances the TRANSSC representative is also from that country's national transport competent authority. There are 159 member states or countries that are members of the IAEA. Although each country is invited to nominate a representative to TRANSSC, presently about 45 countries participate in TRANSSC. In many countries, especially small countries and other developing countries, there's not necessarily an established national regulatory infrastructure for transport and many of these countries choose not to participate in TRANSSC.

Of the countries participating in TRANSSC, most countries routinely attend the committee meetings and these countries support multiple technical meetings and consultancies throughout the year. A few countries have decided to

participate as corresponding members. In this case the corresponding member receives all the committee correspondence and is invited to submit comments on documents and other issues as well as to provide input on other matters under the same guidelines as TRANSSC meeting participants.

I want to specifically identify three additional United Nations, or UN organizations that routinely participate in TRANSSC meetings. These UN organizations are the International Civil Aviation Organization known by its acronym ICAO, the International Maritime Organization, known by its acronym IMO, and the Subcommittee of Experts on transport of dangerous goods which I will refer to in shorthand as the Subcommittee of Experts.

Just as an aside, I will try not to use too many acronyms in my presentation this morning other than the acronyms IAEA, the acronym TRANSSC which I'll make into a word and have already referred to that as TRANSSC, SSR-6 and U.N.

The third UN organization that I listed, the Subcommittee of Experts, has a broad mandate to develop transport regulations of dangerous goods. And that includes radioactive material transport. I would note that the Subcommittee of Experts operates under the auspices of the UN Economic and Social Council. The significance of the participation of these UN organizations in TRANSSC and the importance of a close working relationship and collaboration of the

secretariats of the IAEA and the three UN organizations will be apparent to my discussion a little later on harmonization of the international transport regulations.

TRANSSC as a committee meets twice a year in Vienna. In addition to TRANSSC meetings there are multiple technical and consultants meetings held throughout the year to assist the IAEA in drafting new or revised safety standards and to conduct research and reviews on emerging transport related issues. There's been much discussion recently about holding regional meetings to encourage broader participation by countries that do not participate in TRANSSC. Recall earlier that I mentioned approximately one-fourth, that is 45 of the 159 IAEA member states participate in TRANSSC. Brazil has offered to host a TRANSSC meeting in the fall of 2014 and TRANSSC was very receptive to the offer from Brazil. This offer is currently under consideration by the IAEA.

Now moving to TRANSSC responsibilities, the primary responsibility of TRANSSC is to maintain the IAEA regulations for the safe transport of radioactive material, SSR-6. This includes a biannual review, a review every two years, of the transport regulations and when deemed necessary the revisions of the regulations. We just completed a revision of SSR-6 that was published late last year in 2012. Along with the responsibility to review and as needed revise the regulations, TRANSSC

also advises on the need to develop new transport safety guidance or the need to revise existing guidance.

In addition to developing and maintaining the international transport regulations, SSR-6, the IAEA and TRANSSC have developed and published six transport safety guides. These safety guides as listed on the overhead are first, the advisory material on the IAEA regulations for the safe transport of radioactive material. This safety guide is commonly referred to as the advisory material.

TSG 1.2 planning and preparing for emergency response to transport accidents involving radioactive material.

TSG 1.3 radiation protection programs for the transport of radioactive material.

TSG 1.4 management systems for the safe transport of radioactive material.

I would note that this guide previously was referred to as the quality assurance program for the safe transport of radioactive material. This guide on management systems includes as a major sub-element quality assurance.

TSG 1.5 compliance assurance for the safe transport of radioactive material. This guide basically applies and is applicable to government repertory programs.

The sixth safety guide, TSG 1.6 schedules of provisions of the IAEA regulations for the safe transport of radioactive material. This safety guide provides guidance and package selection and identifies applicable requirements and is commonly referred to as a safety guide on schedules.

Now you note the TS in the title identifies the document as a transport standard. And for the safety guides, the G identifies the standard as a safety guide. These designations are under the, I'll refer to old IAEA nomenclature. In the future the transport specific safety guides will have an SSG-NN a sequential number assigned when those safety guides are revised and new versions are published. I would note that TSG 1.1 the advisory material is going to be numbered SSG-26.

As an aside, please don't ask me to justify or to defend the nomenclature change. Personally I preferred the previous designation.

Starting in 2011 the IAEA added new responsibilities for all the safety standards committees including TRANSSC. These responsibilities included advising the IAEA on areas for program improvement. To advise the IAEA on topical areas for focus and to review priorities of actions for the overall IAEA safety program.

While this for many of you may not sound like a big change or a new task, this change, this added responsibility to TRANSSC was significant. Previously TRANSSC has a major role and responsibility almost solely the review and revision of the IAEA transport safety standards, the regulations and the safety guidance.

TRANSSC now has a very broad mandate to review and provide advice on all aspects of IAEA's transport safety program. TRANSSC also has some additional responsibilities that might be considered more routine and these include, for example, review of new and revised standards that may impact transport. TRANSSC reviews these standards before their submission to IAEA member states for review and comment, and again before final submission to the Commission on Safety Standards for endorsement or approval.

Review of draft safety standards considering the needs of the users of the standards. TRANSSC is also charged to ensure broad international input into the preparation and review of IAEA safety standards and TRANSSC is asked to advise on safety standards, relevant regulatory issues and activities for supporting the use and application of the agency safety standards internationally.

Now that I've mentioned IAEA safety standards quite a few times, I think I need to take a minute or two to briefly describe these standards. In a very broad

sense the IAEA safety standards reflect an international consensus on what constitutes a high level of safety for protecting people and the environment from harmful effects of ionizing radiation. Let me state this now in the context of the IAEA transport standard SSR-6. SSR-6 represents an international consensus of IAEA member states' transport experts on what constitutes a high level of safety for the transport of radioactive material.

There are three levels or categories of IAEA safety standards. Some of you may be familiar with the graphical pyramid that the IAEA uses to depict the hierarchical relationship of the safety standards. I have borrowed that from the IAEA on this overhead. At the top of the pyramid is the IAEA safety fundamental standard. This is an overarching safety standard that covers at a very high level the governmental responsibility for regulatory oversight of a country's national, nuclear and radioactive material program. The safety fundamentals describe the objectives, principles and concepts that provide the basis for the suite of IAEA safety standards.

Underneath the safety fundamentals on the pyramid are the IAEA safety requirements. There are two categories of safety requirements, the general safety requirements that have broad applicability to all nuclear and radioactive material programs, and the specific safety requirements that have limited or specific applicability to certain programs or groups of programs. The transport

regulations fall under this latter category of safety requirements, hence the name Specific Safety Requirement No. 6.

The third category of safety standards includes the safety guides that are developed to provide guidance to support implementation of the safety requirements. The safety guides are also divided into two types, safety guides that are broadly applicable to all programs and are referred to as General Safety Guides, and those that are applicable to specific programs that are referred to as Specific Safety Guides. Again, the transport safety guides fall into this latter category of specific safety guides.

Earlier I mentioned that TRANSSC is one of the four IAEA safety standards committees. The other three safety standards committees include first, the Nuclear Safety Standards Committee that has responsibility for review and development of safety standards for nuclear installations. This includes nuclear power plants, research and test reactors, fuel enrichment and fuel fabrication facilities, spent fuel reprocessing facilities and other types of facilities.

Next is the Radiation Safety Standards Committee that has responsibility for development of radiation protection programs for all nuclear and radioactive material programs including transport. The third committee is the Waste Safety Standards Committee that has responsibility for the development of safety

standards for waste management and disposal of all nuclear and radioactive material. The Waste Safety Standards Committee also has responsibility for developing standards for decommissioning of facilities and sites.

To support the work of the four safety standards committees, the IAEA holds many technical meetings and consultancies that are supported by IAEA member states, technical experts to review certain issues and to provide recommendations to the IAEA to one or more of the safety standards committees.

An example of this type of work would be the multiple consultancies and working groups sponsored by the Waste Safety Standards Committee and by TRANSSC to review and make recommendations on the transport of spent fuel after long term storage.

In addition, the IAEA holds technical meetings that typically have a larger audience and generally address substantiative and broad topics. An example of a technical meeting is the recent transport technical meeting held in Vienna just last month to review changes in the environment experienced by radioactive material transport packages, taking into account scientific evidence of changing global weather patterns and changes to infrastructure and changes to industry operations.

In addition to the four safety standards committees, the IAEA established an oversight committee called the Commission on Safety Standards. This committee has among its responsibilities the role to review all the safety standards developed by the four safety standards committees. In the context of transportation the Commission on Safety Standards reviews and endorses revisions to the IAEA transport regulations, SSR-6, for approval by the IAEA Board of Governors. The commission also reviews and approves all transport safety guides.

The Commission on Safety Standards is comprised of senior executive managers of national regulatory agencies. For example, the USA representative on the commission is Mr. Michael Weber. Mike is Deputy Executive Director for materials, waste, research, state, travel and compliance programs at the NRC.

Another example is Mr. Lachaume, our Patram plenary speaker yesterday morning. He is the Deputy Director General of the French Nuclear Safety Authority and is the French representative on the Commission of Safety Standards.

Now I want to provide some context and background on the IAEA transport regulations, SSR-6, that are developed by the IAEA and TRANSSC. I suspect that

some of you may be wondering why or how did the IAEA take on the responsibility to develop the international transport regulations. Mr. Hahn of the IAEA mentioned on Monday morning the very early consideration of transport in 1957 when the IAEA was first being organized. In 1959 again very shortly after the creation of the IAEA in 1957, the UN Economic and Social Council requested IAEA to develop radioactive material transport recommendations consistent with and in consultation with other UN organizations. It took the IAEA with assistance from international transport experts only a few years to prepare and publish the first transport safety standard in 1961.

The 1961 transport regulations were titled Regulations for the Safe Transport of Radioactive Material. Interestingly, that title has been carried forward now for 52 years. Personally I find it remarkable that somewhere, somehow, sometime over the past 50 years no one reengineered, edited, reedited the title of the regulations. Further, over the past 50 years the IAEA transport regulations since their initial issuance in 1961 have been revised 10 times with the most recent revision being published last year in 2012.

The transport regulations establish the requirements for all aspects and all modes of transport for radioactive material. The IAEA transport regulations apply to radioactive material transported by air, water, land which includes both road and rail transport. To ensure the safety of radioactive transport and to protect

persons, property and the environment from the effects of radiation in transport, the IAEA transport regulations have four primary objectives. These objectives are to achieve containment of the radioactive material, control external radiation levels, prevent criticality, and prevent damage caused by heat. The regulations identify the radioactive material content and activity level for which the transport regulations apply and present the radioactive material transport requirements for packaging, labeling, testing, documentation, notification and many other requirements.

The IAEA transport regulations provide the basis for radioactive material transport requirements contained in other UN organizations' transport regulations, in some regional agreements and directly or indirectly in most countries' national transport regulations. I'll talk in just a minute a little bit more about the IAEA interface and coordination with the UN organizations, but I do want to draw your attention to the fact that almost all countries' national radioactive material transport regulations are either directly or indirectly based on IAEA's international transport regulations. For example, in some countries SSR-6 is copied directly into the national regulations while in other countries such as here in the United States the radioactive material transportation regulations of the Department of Transportation and the NRC are in most aspects very consistent with and are based in large part on the IAEA transport regulations.

In the United States and other countries variations from the IAEA transport regulations exist based on national determinations which is clearly a national sovereign right. However, I believe the benefits of overall consistency of national and international transport regulations are very clear.

I suspect you have noticed by now that on more than one occasion this morning I have mentioned the involvement of IAEA with other UN organizations in the area of transport. The secretariats of the IAEA, the International Civil Aviation Organization, International Maritime Organization and the Subcommittee of Experts routinely participate in the transport related meetings of each other's UN organizations. They maintain a close interface and coordination on radioactive material transport matters especially with regard to changes being considered in the transport regulations.

Previously I mentioned that in 1959 the UN Economic and Social Council asked the IAEA to develop regulations for the transport of radioactive material. The Subcommittee of Experts on the transport of dangerous goods operates under the auspices of this same UN council. The Subcommittee of Experts has a broad mandate with regard to transport of dangerous goods. The Subcommittee of Experts has the responsibility to develop and maintain the UN model regulations, recommendations on the transport of dangerous goods. The UN model regulations provide a universal system for the transport of all dangerous goods.

And I'll add that the UN model regulations are often referred to as the UN Orange Book. And yes, if you are not already aware, the cover or jacket for this publication is orange in color as shown on the slide.

Now the UN model regulations provide for the uniform development of national and international regulations governing the various modes of transport of all dangerous goods including radioactive material. The UN model regulations identify nine classes of dangerous goods. Radioactive material is categorized as class 7 in the listing of dangerous goods. In continuing response to the 1959 request for the IAEA to develop regulations for the transport of radioactive material, the IAEA routinely provides the Subcommittee of Experts revisions to SSR-6 for the Subcommittee of Experts' incorporation into the UN model regulations.

The Subcommittee of Experts reviews and revises the UN model regulations every two years. Typically the Subcommittee will start a new review and revision cycle every odd numbered year and a final revision is approved at the end of every even numbered year. To put this in context, the Subcommittee of Experts started a new review cycle this year, 2013. And a new revision of the UN model regulations should be approved by the Subcommittee of Experts at the end of next year, 2014.

The IAEA attempts in planning and scheduling of the biennial review of SSR-6 to have the schedules coincide with and support IAEA's input to the Subcommittee of Experts' review and revision cycle for the UN model regulations.

Now I've mentioned two other UN organizations that actively participate with the IAEA and TRANSSC and the Subcommittee of Experts. These are the two UN modal organizations, the International Civil Aviation Organization and the International Maritime Organization. Following revision of the UN model regulations. These UN organizations subsequently revise their respective modal regulations, the International Civil Aviation Technical Instructions for the Safe Transport of Dangerous Goods and the International Maritime Dangerous Goods Code for Safe Transport.

The last topic I want to discuss with you this morning includes some of the near term and longer term activities coming before the TRANSSC committee and how some of this work may influence future considerations and/or changes to SSR-6.

The biennial review of the transport regulations is directed by the IAEA Board of Governors. The Board of Governors consists of very senior governmental representatives from 35 IAEA member states. This body provides oversight and

direction to the IAEA. The IAEA and TRANSSC review the transport regulations is conducted every two years except during a period when the regulations are already undergoing revision.

Earlier this year the IAEA initiated a new two year review cycle SSR-6 with an invitation to all IAEA member states to provide recommendations for changes to the regulations or to identify issues needing further study that may result in possible changes in the regulations.

At the November meeting of TRANSSC a little bit later this year, the TRANSSC committee will review the recommendations and will make their decision and recommendation to the IAEA on whether or not there is a need to revise the transport regulations. This determination is based primarily on safety considerations. However, additional considerations include for example costs or the burden of the regulation. Maintaining regulatory stability is also a major consideration for TRANSSC in these deliberations. If TRANSSC determines a revision of SSR-6 is justified, a new revision cycle for SSR-6 will be initiated by the end of this year. I'll not make a prognosis on the TRANSSC November meeting, I will note the committee conducts a very careful evaluation of the justification and the basis for any proposed change to the regulations.

This year the IAEA will be completing a multiyear project to develop a document that identifies the technical basis for the transport regulations. Many of you here today were contributors to this project. This document will start with a technical basis for the first transport regulations issued in 1961 and will address all subsequent regulation changes including the most recent edition published last year in 2012. Have you ever asked yourself where does the 30 foot or nine meter drop test come from? Or how the fire temperature and fire duration were decided? This document I believe will answer this question and many more.

In preparing the document the IAEA staff and consultants when through many old archived documents. In many cases the staff consulted with our elder or senior transport experts for their personal recollections and to obtain copies from them of old files and records. The technical basis document will assist TRANSSC in reviewing future recommended changes to SSR-6. I believe it's important to not only understand the justification and the technical basis for a proposed change to the regulations, but I believe it's also very important to understand the existing technical basis for the specific requirement being considered for change. The technical basis document also serves as a knowledge management and knowledge transfer tool and will be an excellent instructional aid for new staff to learn the what, the how, and the why about radioactive material transport.

I also wish to identify the collaborative work of the TRANSSC committee working with the waste safety standards committee to address extended storage of spent fuel followed by transport. By extended storage the timeframes are measured in tens of years up to 100 years or more. There have been multiple technical meetings, working groups and consultants meetings over the past few years including both transport and waste experts reviewing this topic. I anticipate that later this year at the TRANSSC November meeting TRANSSC will review recommendations for new and/or revised safety standards to address the transport of spent fuel after very long term storage. Recommendations with regard to management of the spent fuel storage are also anticipated and will be addressed by the waste committee.

One last activity I wish to highlight is the evolving need for TRANSSC and the transport community to consider the transport considerations for transportable nuclear power plants. This matter in consideration raises a number of transport issues concerning for example the review and approval of a fuel transportable reactor. Fueled initially and transported with fresh fuel and at the end of life transported with spent fuel. I believe the transportable nuclear power plant concept poses some very significant and some very challenging considerations for TRANSSC and the transport community.

In closing I again want to thank the Patram 2013 organizers for inviting me to speak with you this morning. I hope that my remarks have helped you gain a better understanding of the TRANSSC committee, the IAEA safety standards program and related IAEA transport activities. The true experts on IAEA's radioactive material transport program, that is the IAEA staff from the transport safety unit, are here at Patram and they can provide more details on the program, or if needed they can correct any misstatements I've made this morning.

I also want to acknowledge that there are number of additional IAEA transport experts in the audience including IAEA management and staff, previous IAEA managers and staff, and many international transport experts. So if we have time for questions and depending on your questions, I may take the liberty to recognize those experts to help address your questions. Thank you for your attention and I wish everyone a good day. Thank you.

Steve O'Connor.
Thank you, Bill. That was a very informative overview of the TRANSSC activities and the IAEA safety standards committee structure. I thought that was very informative. I appreciate that. Any questions?

Question.

George Sallit, Office for Nuclear Regulation, United Kingdom. Thank you to both speakers for a clear exposition. A thought and apologies for springing this on you, Bill, but here it goes. The one thing that struck me about the first talk was that big number that appeared there, which if I remember it right, 28 million cubic meters of material is going to be transported in Japan. I think without doubt SSR-6 or TSR-1 was never envisaged to cover a transport operation like that. That I think is beyond what's been done before.

I then look at the second talk and Bill is saying that we bring some of the world's experts together to look at the regulations. And my thought is, wouldn't it be good if maybe for a week we got those guys together and said could they apply a risk informed approach to deal with moving 28 million cubic meters, and maybe come up with some changes, some references that would allow that to happen. Because the current regs are based on moving nuclear fuel flasks and radioactive sources routinely. And all the models are based on that and they're not based on moving 28 million cubic meters of soil. Just a thought.

William Brach.

Thank you, George. I think that's not only an excellent observation but an excellent recommendation. I too when I saw the 28 million cubic feet of waste to be moved, what I was thinking of was what type of packaging container is being envisioned. And then how many. And an earlier comment I heard in

another presentation talked about the number of years it might take to transport certain, I think they were larger objects, but now we're talking about 28 million cubic meters of waste. I think your suggestion and recommendation and perhaps at the TRANSSC meeting would be appropriate to bring up consideration of maybe not only help our colleagues from Japan but in a broader context should there be an international regime being considered for transport of extremely large volumes of material such as that. Thank you.

Question.
[Steve O'Connor] You may have already addressed this, but what do you see as some of the biggest challenges facing TRANSSC now and in the future? Basically sort of the passing the baton to the next chair.

William Brach.
I would rather answer that as what I see as a challenge for TRANSSC. One thing I will offer, in the transport community and many of you here today have been in the transport activity for many more years than myself. I would offer that in the transport community there is very much of a collegiality internationally, whether it be the competent authority or whether it be to others involved in transport whether as a regulator or on the commercial side as a licensee, a shipper or a carrier. There's much of a longstanding collegiality in the transport community so that from the standpoint of first answering your one question.

My term as chair ends the end of this calendar year. There will be a new chair appointed by the IAEA starting next year. I see that the new chair whomever he or she will be will be fortunate in being able to be chairing an organization, the TRANSSC community, that engaging in a TRANSSC community that is so collegial and camaraderie in many aspects that I think that that individual will be inheriting an organization that I inherited from my predecessor that works very well together and very cooperatively.

Now as far as challenges to the TRANSSC community in addition not only to the comment that George Sallit from the UK had just raised very specifically with the transport of large volumes of material. There are a number of issues that TRANSSC has before them. Just in a presentation before the plenary, I had the benefit of sitting and listening to a couple of comments offered by member states who are active participants in TRANSSC suggesting consideration of changes in the regulations. One was to address the transport of large items.

Now what do I mean by large items? That could be for example pressurizers, steam generators, other large bulk items that don't fit into the traditional, if you will, type B package that we all envision. Recommendations came from a member state coming to TRANSSC to consider how regulations might be considered to be modified in the future to address that, if you will, fact of life

with decommissioning of facilities as well as some power plants life being extended and the need to change out major large components. That's a reality that's facing us that in the past has been handled under the framework of what's referred to as a special arrangement in the regulations, looking at alternatives there.

Another consideration that was mentioned this morning was looking at the change of the environment. I briefly mentioned the TRANSSC technical meeting that was held in July, just last month, looking at considerations of the transport regulations taking into account the global climatic changes. Changes in the infrastructure of transport. A number of recommendations were coming from that activity concerning for example emersion tests is one that comes to mind.

So I think there are a number of challenges that TRANSSC will have, not only before us in the near term but at this fall meeting or subsequent meetings, but in the longer term to be sure that our transport safety regulations that have had and maintained such an enviable safety record for well over 50 years, that we are not only maintaining that record but keeping our eyes open to what are the challenges on the horizon especially as it relates to for example large volumes of waste, transport of large items or the ongoing and current adequacy of all of our testing and process arrangements to be sure that we're maintaining currency in that regard.

Steve O'Connor.

Thank you very much, Bill. If not, I want to thank you for coming. Thank you, Bill.

Be sure to join us for the technical keynote.