Submission No.22.1
TT 14 May 2008

Joint Standing Committee on Treaties (JSCOT) review of the Agreement between the Government of Australia and the Government of the Russian Federation on Cooperation in the Use of Nuclear Energy for Peaceful Purposes: Responses to the questions raised by the Friends of the Earth in Submission Number 17.

1. Can ASNO/DFAT advise what percentage of Russia's nuclear material has been adequately secured as at 2008?

Over the past two decades there have been at least 17 significant multilateral and bilateral international assistance programs aimed at improving safety and security in Russia's nuclear sector – totalling well over $US10 billion. The focus of these programs has ranged from commitments of tens of millions of dollars for assisting specific nuclear reactors, to the multi-billion dollar Nunn-Lugar Cooperative Threat Reduction Program that has, over 17 years, secured tons of weapons-usable nuclear material. As a consequence of all these programs there has been a substantial improvement in the safety and security of nuclear materials and facilities in Russia.

Quotes referring to "only half of Russia's material being secured" refer to the progress of fully completed security upgrades in 2005. Former US Senator Nunn made it clear at the time that this **did not** mean there was **no security** on some Russian nuclear material. As stated above, the Nunn-Lugar program has contributed to a substantial improvement to the security of nuclear material in Russia, and continues to do so. A report commissioned by the Nuclear Threat Initiative (NTI – Senator Nunn is the NTI Co-Chairman) and published in 2007 noted that nuclear security in Russia had dramatically improved since the mid-1990s as a result of US and international assistance, and Russia's own efforts.

In April 2008, the US National Nuclear Security Administration (NNSA) reported that it had completed security upgrades at more than **85 percent** of Russian nuclear weapons sites of concern, and confirmed that similar nuclear security upgrades on the balance of Russian sites are on schedule for completion by the end of 2008. (http://nnsa.energy.gov/news/print/1989.htm). Other successes reported by NNSA include (http://nnsa.energy.gov/news/982.htm):

- Securing 178 buildings containing hundreds of metric tons of weapons-useable Russian nuclear material at 11 Russian Navy reactor fuel sites, seven Rosatom Weapons Complex sites, six civilian (non-Rosatom) sites, and 12 Rosatom civilian sites.
- Converting into low enriched uranium almost 10 metric tons of Russian excess highly enriched uranium (not from its weapons program).
- Reaching an agreement with Russia on principles to sustain security upgrades after 2012, when Russia assumes full responsibility for security of its own sites.

In May 2008, Russia and the US signed a new 30 year agreement that will provide an opportunity to share peaceful nuclear technology and combat nuclear proliferation. The agreement will enable both countries to cooperate to develop proliferation-resistant technology that would reduce the chance of dangerous material falling into the hands of rogue states or terrorists. It will also provide for enhanced nuclear material law enforcement in the two countries (http://www.america.gov/st/peacesec-english/2008/June/20080616160146gmnanahcub0.7265436.html).

2. Can ASNO/DFAT confirm that Russia has not adopted recent, important amendments to the Convention on the Physical Protection of Nuclear Material. If so, why is this not revealed in the National Interest Analysis or other relevant documents?

This matter was covered in DFAT's submission number 22 of 28 July 2008 on this topic. The relevant part of that submission is repeated as follows:

Russia, along with Australia and the other Convention on the Physical Protection of Nuclear Material (CPPNM) states parties involved in negotiating the Amended CPPNM, adopted the text of the Amendment in July 2005. This information is readily available on the IAEA's web site on the CPPNM.

Under the terms of the Amendment, it does not enter into force until two thirds of states parties have ratified. Currently 17 out of 136 states parties have ratified the Amendment, so entry into force will likely take a number of years. Clearly it would not be sensible to make the Amended CPPNM a pre-condition for concluding an agreement. In fact the Amended CPPNM is contemplated in the Australia-Russia nuclear cooperation agreement, as the provision in the agreement to apply the CPPNM to Australian nuclear material also includes "any amendments that are in force for each Party …".

The Committee may be aware that Australia has recently (on 17 July 2008) deposited its instrument of ratification of the amended CPPNM with the IAEA, making Australia the 17th country to ratify (this was reported by Mr Stephen Smith MP in a press release on 18 July). I am pleased to report that Russia has also announced this month [i.e. July] that its parliament has approved the ratification of the amended CPPNM.

3. Can ASNO/DFAT advise as to the number of safeguards-eligible facilities in Russia and the number which have actually been inspected in recent years?

Russia does not as a matter of course publish the list of eligible facilities. This is confidential between Russia and the IAEA.

In 1990s the IAEA conducted safeguards inspections of a number of facilities in Russia. However, it is the case that the IAEA has not conducted safeguards inspections there since 2001. During this period, IAEA safeguards activities in Russia have been limited to the evaluation of accounting reports on the export and import of nuclear material, since the IAEA has not selected any facility for inspection from Russia's list of eligible facilities.

The IAEA's priority is to counter horizontal proliferation, i.e. the acquisition of nuclear weapons by further states. Consequently, safeguards effort is concentrated in non-nuclear-weapon states. Traditionally the IAEA has used inspections in the nuclear-weapon states as a means of training inspectors, by familiarising them with specific facility types.

Russia therefore has limited experience with IAEA inspections of its nuclear facilities as, until recently, it had not sought to source uranium from countries (such as Australia) that require supplied nuclear material be used in facilities subject to IAEA safeguards. However, Russia is completing a major reform of its nuclear industry to clearly separate its civil and military sectors, and to place civil facilities under its IAEA safeguards agreement. Given the requirement that Australian Obligated Nuclear Material (AONM) can only be used in facilities subject to IAEA safeguards,

once supply begins it is expected that the number of facilities eligible for IAEA inspections in Russia will increase. Russia will provide the list of facilities proposed for use of AONM to Australia pursuant to Article X of the Agreement, and has already advised that the Angarsk enrichment centre is now on Russia's eligible facility list.

4. Which enrichment plant does Russia propose to enrich Australian-origin tails at – Novouralsk?

It is possible that Russia will use the enrichment plant at Novouralsk for this purpose, but as yet Russia has not given formal notification of the enrichment plant it proposes to use.

5. Does ASNO propose that MUF information relating to the Australia-Russia Agreement will be kept confidential?

Under all of Australia's safeguard agreements, the details of nuclear material accounts are provided to ASNO on a confidential basis. Any Material Unaccounted For (MUF) which is reported to ASNO is investigated if it is outside normal limits for the processes involved.

The term "MUF" is used in safeguards to indicate differences between operator records and the verified physical inventory. Differences are common due to measurement processes. These differences do not indicate material missing, as often as not MUF shows a gain in material.

6. Does ASNO propose to include a MUF secrecy clause in the Administrative Arrangements (which is also to be kept secret) or elsewhere?

Administrative Arrangements (AAs) are the working level documents covering detailed procedures for implementing the various safeguards agreements. As has been explained on other occasions, e.g. ASNO's evidence to JSCOT on the Australia-China nuclear agreements, ASNO would prefer to publish AAs, but they remain confidential at the request of some of Australia's bilateral partners. Because all of the AAs are similar, publication of some would reveal the contents of all. What ASNO has done, however, is to publish an outline of the AA provisions. This outline is attached to this submission.

Within the AAs, there is no specific MUF confidentiality clause. It is up to each country to decide whether to publish details on MUF. ASNO has always done so for nuclear material in Australia.

7. How can this secrecy possibly be justified in relation to commercial confidentiality since it has no relevance whatsoever to commercial transactions?

Nuclear material inventories and transfers involve commercial nuclear fuel cycle facilities (e.g. Westinghouse, AREVA, General Electric, Urenco, etc.) hence reporting of these stocks and transfers is considered commercially sensitive.

8. Can ASNO/DFAT provide a suitably detailed account of Russia's past and present track record of nuclear exports?

Russian exports of nuclear products include enriched uranium, nuclear fuel, isotope products and the construction of nuclear power-producing units.

Russian uranium exports come from three sources: uranium that is mined, uranium from stockpiles, and Low Enriched Uranium (LEU) that is down-blended from High Enriched Uranium (HEU) under the US-Russia HEU Agreement.

Russia exports uranium in various forms through two major organisations, Techsnabexport (Tenex) and the TVEL corporation.

Tenex reports its major customers for enriched uranium as USEC (USA); BNFL (UK); Urenco (Netherlands-UK-Germany); British Energy (UK); Cameco (Canada); Areva (France); EnBW (Germany); RWE Nukem (Germany); Synatom (Belgium); Vattenfall (Sweden); Enusa (Spain); KKL (Switzerland); Fortum (Finland); TVO (Finland); KHNP (Republic of Korea), and Japanese companies.

TVEL exports reactor fuel for Russian designed nuclear power plants and research reactors in Hungary, Kazakhstan, Uzbekistan, Poland, Ukraine, the Czech Republic, Bulgaria, Vietnam and Libya.

The World Nuclear Association (WNA), in a detailed assessment of nuclear power in Russia (http://www.world-nuclear.org/info/inf45.html) reports that Russian exports of nuclear fuel cycle goods and services were worth some US$ 3.5 billion in 2006. Russia provides nearly one third of European uranium needs and is also selling down-blended ex-military uranium for civil use through the US.

The latter "Megatonnes to Megawatts" program supplies about 15% of world reactor requirements for enriched uranium and is part of a US$ 12 billion deal between US and Russian governments, with a non-proliferation as well as commercial rationale.

Since 1991 Russia has exported nuclear plants to China, Iran, India and Bulgaria. Russia's policy for building nuclear power plants in non-nuclear weapons states is to deliver on a turn-key basis including supply of all fuel and repatriation of used fuel for the life of the plant. WNA reports that Russia is being considered by Fortum to supply Finland's sixth nuclear power reactor, and is a leading contender to build two large reactors in Belarus and the first of a series of small reactors in Kazakhstan.

In 2006, Sergei Kiriyenko, the head of Russia's nuclear energy corporation announced that by 2030 there will be 40 new nuclear reactors in Russia, generating one-fourth of the country's electricity needs, and that Russia also hopes to build as many as 60 additional reactors for clients abroad.

Russian exports to India and Iran are described in the responses to Questions 9 and 10.

9. Can ASNO/DFAT confirm that Russia supplies India with nuclear facilities and materials despite India's status as a non-NPT state? How has the Nuclear Suppliers Group dealt with this issue, if at all?

The NSG Guidelines do not require full scope safeguards with respect to agreements or contracts with non-nuclear-weapon states drawn up on or prior to 3 April 1992 (the "grandfather" clause). Russia proceeded with the supply of India's Kudankulam civil nuclear power plant on the grounds that, although a final agreement was not concluded until 1998, the supply was based the intergovernmental agreement with India which was signed in 1988.

In 2004 Russia refused a request to supply LEU fuel to India, citing its NSG obligations. Earlier Russia had provided 50 tonnes of LEU fuel to the safeguarded Tarapur nuclear power plant, citing the NSG "safety clause". Russia expressed concern that had it not done so, India may have used potentially unsafe indigenously-manufactured fuel.

10. Can ASNO/DFAT confirm that Russia supplies Iran with nuclear facilities and materials despite the fact that Iran has been found to have breached its IAEA safeguards agreement?

The Russian Government has supported international action against Iran's sensitive nuclear activities, including United Nations Security Council Resolution 1696, which made mandatory the suspension of all Iran's uranium enrichment and heavy water activities; and Resolutions 1737, 1747 and 1803, which imposed sanctions on Iran's enrichment-related, reprocessing and heavy water-related activities, and the development of nuclear weapon delivery systems.

The Russian Government also supported the package of incentives, including guaranteed access to civil nuclear power, offered to Iran by the five permanent members of the United Nations Security Council (US, UK, France, Russia and China) and Germany in June 2008.

Russia's building and supplying fuel to Iran's light water reactor at Bushehr are permitted under United Nations Security Council Resolutions on Iran's nuclear program. Under Operative Paragraph 3 (b) of UN Security Council Resolution 1737, provision to Iran of equipment for light water reactors and low-enriched uranium when it is incorporated in assembled nuclear fuel elements for light water reactors is permitted. The agreement between Russia and Iran for Russia to provide nuclear fuel to the Bushehr reactor also requires that all spent nuclear fuel be returned to Russia.

Russia maintains that its preparedness to supply fuel for the Bushehr reactor under these arrangements reinforces that Iran does not need an enrichment capability to pursue a peaceful nuclear energy program, a point acknowledged by the US, which has also recently (6 May 2008) signed a bilateral nuclear cooperation agreement with Russia.

11. Can ASNO/DFAT advise as to actual or proposed nuclear exports from Russia to the Burmese regime?

Rosatom has reported that representatives of Atomstroyexport and Burma met in Moscow on May 16 2007 to negotiate the preparations for the construction of a centre for nuclear studies in Burma. The negotiations were part of the preparations for the implementation of the Russian-Burmese inter-governmental agreement on joint construction of a nuclear research centre. The centre aims to help the Burmese to carry out research in nuclear physics, biotechnology, material and medical sciences. There has been no reported progress on this agreement.

12. Is it not possible that Australian uranium could be sent to Iran via Russia as a result of substitution arrangements at unsafeguarded conversion or enrichment plants?

Australian Obligated Nuclear Material, or AONM, will at all times be covered by the provisions of the Agreement. All of Australia's bilateral nuclear safeguards agreements, including the existing (1990) agreement with Russia, and this new

Agreement, require Australia's consent before AONM can be transferred to a third country. Under longstanding Australian policy, consent is given only for transfers to countries with which Australia has a bilateral nuclear safeguards agreement. As Australia does not have a bilateral safeguards agreement with Iran, Russia is legally obligated under the agreement not to transfer AONM to Iran.

Uranium is a "fungible" material, that is, any uranium of specific form and composition is identical, and interchangeable, with any other uranium of the same form and composition. This is known as the "equivalence" principle and is universal safeguards practice. Once uranium enters a process where it is mixed with uranium from other origins, the principles of equivalence and proportionality apply. A proportion of the output of the process, corresponding to the input attributed to Australia, will be designated as Australian obligated nuclear material. Substitution is based on the application of these principles. This is regardless of whether the particular plant is covered by safeguards.

A GUIDE TO ADMINISTRATIVE ARRANGEMENTS

From 1993-94 Annual Report of ASNO's predecessor, the Australian Safeguards Office (ASO)

Australia's bilateral safeguards agreements establish a framework through which ASO and its counterpart organisations may account for, and control the use of, uranium supplied by Australia, or subsequent generations of nuclear material derived from its use. Each agreement is supplemented by an Administrative Arrangement (AA). This is a confidential document of less than treaty status which describes the way in which the obligations contained in the bilateral agreement are to be fulfilled.

Depending on the scope of the relevant agreement, each AA applies to nuclear material, material, equipment and technology transferred between the two parties (some agreements cover only nuclear material). The requirements set out in an AA apply to both ASO and its counterpart organisation, and are designed to ensure the smooth transfer of material and/or equipment between the parties, and for its tracking within the recipient's fuel cycles. The purpose of such tracking is to ensure the conditions set out in Australia's bilateral agreements are adhered to.

AA procedures dovetail as much as possible with IAEA safeguards. To avoid duplication, the IAEA accounting system is used for the purposes of the AA. However, since the IAEA system does not identify material by country of origin (or safeguards obligation), the AA sets out procedures by which material coming under the agreement can be so identified.

Once Australian yellowcake has been converted into a useable form it becomes subject to IAEA safeguards. Inspection activities carried out by the IAEA provide assurance that the nuclear material is not diverted from peaceful uses.

Accounting and Control

The system of accountancy and control established by each AA enables the parties to account for Australian obligated nuclear material, "AONM", as it moves through the nuclear fuel cycle after export as yellowcake from Australia.

This identification is achieved by means of the principles of proportionality and equivalence which are based on the recognition that atoms or molecules of any substance are indistinguishable from one another, and that in industrial processes it is impracticable to keep atoms from a particular country separate from atoms from other countries. Using the proportionality principle, the recipient country will track AONM through its fuel cycle by attributing a quantity of (say) uranium hexafluoride (UF_6) as being AONM in the same proportion that the quantity of Australian yellowcake bore to the total amount of yellowcake used to produce the uranium hexafluoride. Mixing by the recipient country of Australian material with material of other origin does not result in "contamination" of all the material.

Processing losses are accounted for in the same way. If out of 10 tonnes of U_3O_8 used to make a quantity of UF6, 5 tonnes is AONM, half the processing losses come from the Australian material and half the final quantity of UF6 will be AONM.

The principle of equivalence ensures that it does not matter what part of the UF_6 in the above example is designated as AONM, provided that the proportionality principle continues to apply. The principle of equivalence does not allow substitution of lower quality material to be designated as the material subject to the agreement - eg. a quantity of enriched uranium derived from AONM using the proportionality principle could not be replaced by natural or depleted uranium.

The application of these principles enables the ASO and its counterpart organisation to exchange regular reports so that each is able to account for all nuclear material subject to the agreement. These reports are based on records kept by ASO and its counterpart. The records start from an initial inventory of material transferred from one country to the other after a certain date (usually the date of entry into force of the agreement). The inventories and records are continually updated as further material arrives in, or leaves the country, or as it changes its form as it goes through the fuel cycle, and take into account all inventory increases and decreases.

Communications

When any nuclear material is to be shipped between Australia and its bilateral partner, communications have to be exchanged stating, amongst other things, the point at which the nuclear material will come under the terms of the agreement, the owner, its intended use and when responsibility for the purposes of the IAEA/NPT safeguards and responsibility for physical protection are transferred between the two parties. In most cases nuclear material transferred between Australia and its bilateral partner becomes subject to the agreement when it enters the latter's territory.

Before a recipient country can retransfer any AONM to a third country, it must seek Australia's prior consent. The AA specifies the information which must accompany the request so as to enable tracking of the AONM into third countries. The requests must specify, for example, the owner, form of the material, from whom it is being retransferred, the facility to which it is going in the third country, and the proposed use of the material.

Arrangements for material, equipment and technology

Where a bilateral safeguards agreement covers these matters, the AA provides for the ASO and its counterpart organisation to establish inventories of all material, equipment and technology subject to the agreement transferred between their two countries. They have to inform each other regularly of the location of the items, and of compliance with any conditions attaching thereto under the agreement. Any requests to retransfer will need to specify the same sort of information as applies to nuclear material.

Third party considerations (multi-labelling)

AONM sold to a customer automatically attracts conditions imposed by the bilateral safeguards agreement between Australia and the customer country. This AONM may also become subject to conditions contained in agreements or arrangements with third parties For example, if AONM passes through the USA for conversion, enrichment or

fabrication, it may attract conditions imposed by an agreement between the USA and the customer country. In these circumstances ASO and its counterpart in the customer country will consult. The consultations aim to simplify procedures required to ensure compliance with all conditions, without of course detracting from conditions under the Australian agreement.

Consultations

The ASO and its counterpart may consult on any matters connected with the implementation of the agreement or the AA, and the latter can be amended by mutual agreement between ASO and the counterpart.