

# PERFORMANCE

Output 1.1: National Safeguards System Output 1.2: Physical Protection Output 1.3: Bilateral Safeguards Output 1.4: International Safeguards and Non-Proliferation Output 1.5: CWC Implementation Output 1.6: CTBT Implementation Output 1.7: Other Non-Proliferation Regimes Output 1.8: Advice to Government Output 2.1: Public Information

# PERFORMANCE

### **OUTPUT 1.1: NATIONAL SAFEGUARDS SYSTEM**

Operation of Australia's national system of accounting for, and control of, nuclear material, items and facilities.

#### **Performance Measures**

- · Australia's obligations are met under Australia's safeguards agreement with the IAEA
- Australia's system of safeguards permits and authorities is administered in a timely and effective manner
- Australian uranium at mines and in transit accounted for properly

#### **Performance Assessment**

#### **International Obligations**

#### Reporting

ASNO met all of Australia's obligations during the reporting period for the submission of declarations and notifications on nuclear materials and facilities as required by Australia's safeguards agreement with the IAEA.

ASNO reported changes to Australia's nuclear material inventory to the IAEA on a monthly basis. These reports are summarised in Tables 2 and 3. In particular, ASNO regularly audited and reported on the inventory at the Lucas Heights site of the Australian Nuclear Science and Technology Organisation (ANSTO), the principal location in Australia of nuclear material subject to IAEA safeguards. The high number of reports attributed to 'other locations' relates to holdings of chemical salts, mainly held by universities, and depleted uranium shielding held by industrial radiographers.

Facility	2005–06	2006–07	2007–08	2008–09	2009–10	2010-11
ANSTO research laboratories	451	454	550	588	607	989
HIFAR (defuelled 2007)	36	66	27	117	8	0
ANSTO vault storage	18	18	18	27	22	26
Moata (defuelled 1995)	83	9	11	10	8	0
OPAL reactor	28	67	60	106	196	381
Silex laboratories	35	39	68	4	13	0
Other locations	2 258	3 252	3 024	3 286	2 948	2 940
TOTAL	2 909	3 905	3 758	4 138	3 802	4 336

#### TABLE 2: ASNO REPORTS (LINE ENTRIES) TO THE IAEA, 2005-11, BY FACILITY

#### TABLE 3: ASNO REPORTS (LINE ENTRIES) TO THE IAEA, 2005-11, BY DATA TYPE

Type of Data	2005–06	2006–07	2007–08	2008–09	2009–10	2010-11
Inventory Change Report	407	839	488	589	459	838
Physical Inventory Listing	1 200	1 232	1 476	1 550	1 584	1 541
Material Balance Report	160	152	152	152	136	132
Concise Note	1 142	1 682	1 642	1 847	1 623	1 825
TOTAL	2 909	3 905	3 758	4 138	3 802	4 336

Table 4 is a summary of total quantities of nuclear material by nuclear material category in Australia. Notable changes from the previous year's totals include an increase in enriched uranium, from the import of fresh fuel for the OPAL reactor, and a decrease in natural uranium (other than UOC) from the export to the US for recycling for non-nuclear purposes.

#### TABLE 4: NUCLEAR MATERIAL IN AUSTRALIA AT 30 JUNE 2011

Category	Quantity	Intended End-use
Source Material		
Uranium Ore Concentrates (UOC)	353 tonnes	Export for energy use pursuant to bilateral agreements
	6 tonnes	Storage
Natural Uranium (other than UOC)	4 483 kg	Research and shielding
Depleted Uranium	14 742 kg	Research and shielding
Thorium Ore Residues	59 tonnes	Storage/disposal
Thorium (other than Thorium Ore Residues)	1 973 kg	Research, industry
Special Fissionable Material		
235U	142 050 grams	Research, radioisotope production
<sup>233</sup> U	4 grams	Research
Plutonium (other than <sup>238</sup> Pu)	1 243 grams	Research, neutron sources

#### **Nuclear Research and Development**

ASNO ensured that all IAEA requirements were met during the reporting period with respect to formal reporting of nuclear research and development in Australia, and ensured that any associated technology remained in exclusively peaceful use and did not contribute to any proliferation activity.

0

1

2

TABLE 5: ASSOCIATED ITEMS IN AUSTRALIA AT 30 JUNE 2011

Category	Quantity	Intended End-use
Associated Material		
Deuterium and heavy water	28.8 tonnes	Research, reactors
Nuclear grade graphite	83.3 tonnes	HIFAR, Moata and storage
Associated Equipment <sup>16</sup>		
HIFAR <sup>17</sup>	1	Reactor
HIFAR coarse control arms (unused)	5	Reactor components
HIFAR safety rods	3	Reactor components
HIFAR fuel charging and discharging machines	2	Reactor components
OPAL reactor <sup>18</sup>	1	Reactor
OPAL control rods	13	Reactor components
OPAL control rod drives	6	Reactor components
Silex equipment	-	Enrichment R&D

#### **Permits and Authorities System**

Decommission a facility

Communicate information

TOTAL

contained in associated technology

ASNO continued to operate Australia's State System of Accounting for and Control of Nuclear Material in accordance with Australia's safeguards agreement with the IAEA and national legislation. Administration of this system was carried out in a timely manner.

ABLE 6: STATUS OF SAFEGUARDS PERMITS AND AUTHORITIES AT 30 JUNE 2011							
Permit or Authority	Current Total	Granted	Varied	Revoked	E		
Possess nuclear material	93	3	4	1			
Possess associated items	14	0	0	0			
Transport nuclear material	24	0	1	0			
Transport associated items	0	0	0	0			
Establish a facility	0	0	0	0			

2

10

143

0

0

3

0

0

5

0

0

1

<sup>16</sup> The Moata reactor has been removed from this table for the first time as it is now decommissioned and ANSTO has surrendered the facility licence to ARPANSA. The IAEA is yet to designate the facility as decommissioned for safeguards purposes, but ASNO anticipates that this designation will be made over the coming year.

<sup>17</sup> The ANSTO Board decided to cease operation of HIFAR in January 2007. The reactor was de-fuelled in May 2007. It is now awaiting decommissioning.

<sup>18</sup> Includes, inter alia, the reactor reflector vessel and core grid.

Notice of all permit changes was published in the Commonwealth Gazette as required by subsection 20(1) of the *Nuclear Non-Proliferation (Safeguards) Act 1987*. Three permits were revoked or expired where the permit holder no longer held nuclear material or associated items. In the past year, five permits were varied as a result of changes to organisational details and approved locations. One of the permits for possession of nuclear material issued was to NT Energy Pty Ltd, a wholly owned subsidiary of Energy Metals Limited (EME). EME has announced plans to purchase UOC from existing Australian uranium mines, for supply (under its export permission granted pursuant to Regulation 9 of the Customs (Prohibited Exports) Regulations 1958) to China for civil nuclear-power use. Any export of UOC under this export permission will be subject to the Australia-China Nuclear Transfer Agreement.

#### **ASNO Inspections**

During the reporting period, ASNO carried out 13 domestic inspections to ensure that requirements of permits and authorities were being met. From these inspections, ASNO found no indication of unauthorised access to, or use of, nuclear materials or nuclear items. The inspection effort at ANSTO increased from 17% of total inspection effort in 2009–10 to 51% in 2010–11. This increase is due in part to a detailed audit during the reporting period of ANSTO's associated technology holdings.





ASNO ensured that all of Australia's obligations with respect to IAEA inspections were met. During the reporting period, the IAEA conducted two design information verification inspections, three routine nuclear material inventory verification inspections and a short notice inspection. The IAEA exercised its complementary access rights in accordance with the Additional Protocol on three occasions. Details are provided in Table 7.

Date	Facility	Material balance area	Туре
2–3 August 2010	OPAL reactor	AS-F	Short Notice Inventory Verification Inspection
4 August 2010	ANSTO's R&D Laboratories	AS-C	Complementary Access
6 August 2010	Royal Melbourne Institute of Technology	AS-E	Complementary Access
22–23 March 2011	ANSTO's R&D Laboratories	AS-C	Routine Inventory Verification Inspection
	OPAL reactor	AS-F	Design Information Verification Inspection
28 March 2011	On Site Technologies Pty Ltd	AS-E	Routine Inventory Verification Inspection
30 March 2011	Beverley Mine		Complementary Access

	7. 14 54	CAFEOUADDC	INCOLOTIONS	AND	OOMOL EMENTA DV	AOOFCCEC	0040 44
IABLE	IAEA	SAFEGUARDS	INSPECTIONS	AND	COMPLEMENTART	ACCESSES	<b>50T0-TT</b>

The routine Inventory Verification Inspection in material balance area AS-E (an IAEA designation) was the first such inspection since 2005. Under the safeguards arrangements between Australia and the IAEA, the IAEA conducts these inventory verification inspections in AS-E around once every five years. It selects one location for inspection as representative of the material balance area, and uses its conclusions from this inspection to draw overall safeguards conclusions for the entire material balance area. The reason for this approach is due to the relatively small amount and low strategic significance of nuclear material in AS-E.

The IAEA reported the outcomes of its safeguards inspections and complementary access in Australia, including comments on any inventory differences, in statements summarised in Appendix D. These statements confirm that all of Australia's IAEA safeguards obligations were discharged satisfactorily and that relevant records had been maintained in accordance with prescribed practice.

During the reporting period, some small inventory differences were reported to the IAEA. These were due to re-measurements of batches, rounding and correction of doublecounted batches at various locations (e.g. hospitals and universities); there were no inventory differences at facilities of Lucas Heights. Details are provided in Table 8.



ASNO and IAEA inspectors with ANSTO representatives during a routine inspection in March 2011

#### TABLE 8: INVENTORY DIFFERENCES RECORDED DURING 2010-11

Material Balance Area	Difference between Book and Physical Inventory	Comment	
HIFAR (defuelled)	none	Book inventory equalled the	
MOATA Reactor (defuelled)		Physical Inventory	
ANSTO research laboratories			
ANSTO vault storage			
OPAL reactor			
Silex laboratories			
Other locations	0.01 kg Natural uranium	Rounding, re-measurement	
	0.55 kg Depleted uranium	and correcting double-counted batches.	
	0.12 kg Thorium		

PERFORMANCE

ASNO ANNUAL REPORT 2010-2011

# **OUTPUT 1.2: PHYSICAL PROTECTION**

Protection of Australia's nuclear facilities, nuclear material and nuclear items against unauthorised access and sabotage. Internationally agreed physical protection standards applied to Australian Obligated Nuclear Material overseas.

#### **Performance Measures**

- Physical protection of nuclear material, technology and facilities meets Australia's obligations under the Convention on the Physical Protection of Nuclear Material (CPPNM), bilateral agreements and IAEA guidelines
- · Australian uranium at mines and in transit is properly protected
- Internationally agreed standards for the physical protection of nuclear material are applied to all AONM
- Proactive and professional contributions made to the development and effective international implementation of the CPPNM and associated physical protection guidelines

#### **Performance Assessment**

#### **International and Bilateral Obligations**

ASNO's inspections of permit holders established that physical protection arrangements at those facilities were in accordance with Australia's obligations under the CPPNM, IAEA guidelines, and relevant bilateral safeguards agreements. ASNO also met Australia's international shipment notification obligations under the CPPNM by notifying relevant parties of the transhipment of Australia's uranium ore concentrates.

#### **Domestic Security of Australian uranium**

ASNO visited the Beverley uranium mine in South Australia during the reporting period, thus completing a bench-marking exercise of all Australian uranium mines. On the basis of this exercise, recommendations were made for each mine to improve, inter alia, written security plans, CCTV detection capabilities and security procedures during non-operational hours. These recommendations will be followed up on a progressive basis in the coming reporting period.



ASNO and mine staff at a physical security inspection of the Honeymoon mine.

On 1 March 2011, ASNO evaluated security arrangements at the Honeymoon mine against its security plan and ASNO's permit requirements. After satisfactorily addressing all of ASNO's recommendations, ASNO granted the Uranium One/Mitsui joint venture a permit to possess nuclear material for the purpose of operating a uranium mine on 13 May 2011. This was the first uranium mine approved by ASNO for operation since the Beverley mine began full operations in 2000. As of the end of the reporting period, the mine was still undergoing final commissioning and had not yet produced any UOC. The Honeymoon mine is located in South Australia, near the NSW border, and will be Australia's second in-situ recovery mine. It is expected to produce about 400 tonnes of uranium per year.

#### **Exports of Australian uranium**

Reporting by conversion facilities, safeguards authorities and shipping agencies confirmed that all AONM transferred from Australia safely reached its destination. The physical protection measures specified for these transfers effectively contributed to this outcome.

ASNO continued to require exporters to adopt and report on specific procedures to ensure appropriate levels of physical protection for uranium ore concentrates (UOC) shipments from Australia to the port of unloading overseas. These procedures included checking of the physical condition of the containers and verifying the integrity of the containers and seals at each port of unloading or transhipment to detect any breaches of physical protection.

As noted in the previous reporting period, ASNO continued to monitor the international maritime security environment, particularly the region around the Gulf of Aden, and continued work with industry, other Government agencies, and overseas counterparts on available shipping services.

#### **Nuclear Security at Lucas Heights**

In September 2010 ASNO, in consultation with ARPANSA, approved the de-designation and final removal of the security fence that encompassed the shut-down HIFAR reactor (so called 'HIFAR protected area'), spent fuel ponds and other associated facilities. As the HIFAR reactor was shut-down in 2007 and all its used fuel been exported overseas, the inventory of nuclear material within the security fence had dropped from security Category II to security Category III according to the IAEA guidance document INFCIRC/225, thus not requiring a formal protected area. After ANSTO had upgraded security arrangements on some of the individual buildings still holding nuclear material within the HIFAR protected area fence could be removed.

In early 2011, ASNO approved the security arrangements for ANSTO's recently constructed new nuclear material store, which will eventually consolidate materials from existing nuclear material stores at Lucas Heights.

#### **IAEA Nuclear Security Series**



In January 2011, the IAEA published the first three recommendations-level documents of the IAEA's nuclear security series namely: *Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities* (*INFCIRC/225/Rev. 5*); *Nuclear Security Recommendations on Radioactive Material and Associated Facilities; and Nuclear Security Recommendations on Nuclear and other Radioactive Material out of Regulatory Control.* ASNO was strongly involved in the development of INFCIRC/225/Rev. 5, participating in six expert consultancy meetings and two open-ended meetings

since July 2008. INFCIRC/225 is mandated under Australia's nuclear cooperation agreements to be used for the protection of obligated nuclear material. As current security requirements are based on revision 4 of INFCIRC/225, ASNO will conduct a gap analysis in order to address any required improvements in nuclear security arrangements, particularly at Lucas Heights.

#### **Nuclear Security Summit**

The Republic of Korea announced that it will hold the second Nuclear Security Summit in Seoul, March 2012, following the Washington summit held in April 2010. Separate experts and industry meetings on nuclear security are also planned to take place in parallel to the summit. In the interim, ASNO attended intersessional summit meetings in Buenos Aires, Vienna and Seoul. At the Buenos Aires meeting of sherpas, Australia led by presenting a reporting matrix of its progress against the Washington summit communiqué and work plan. In Vienna, sous-sherpas discussed nine nuclear security related non-papers that will be used to formulate tangible outcomes for the 2012 ROK summit. In Seoul, sous-sherpas began drafting a new communiqué for the 2012 summit. The next intersessional meeting was set to be held in Helsinki, in early October 2011. On taking up the position of Director General ASNO, Dr Robert Floyd also took on the role of Australia's summit Sherpa, while Dr Stephan Bayer remained as Australia's sous-Sherpa.



Stephan Bayer, Australia's sous-Sherpa, at the Nuclear Security Summit sherpa meeting in Buenos Aires.

#### **Key Nuclear Security Regimes:**

#### **Convention on the Physical Protection of Nuclear Material (CPPNM):**

The CPPNM is the only legally binding international instrument in the area of physical protection of nuclear material. It establishes measures related to the prevention, detection, and punishment of offenses related to nuclear material. The CPPNM was amended in 2005 to make it legally binding for States Parties to protect nuclear facilities and to protect nuclear materials domestically as well as in international transport. Australia played a lead role in that revision process. As of 17 June 2011, 49 states had ratified the amended CPPNM, requiring 47 further ratifications for the Amendment to enter into force at that date.

# International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT):

This Convention entered into force in July 2007, and requires all State Parties 'to make every effort to adopt appropriate measures to ensure the protection of radioactive materials'. Australia signed the Convention on 14 September 2005, but has not yet ratified it – appropriate domestic legislation is being drafted in order that the treaty can be ratified. Many of Australia's domestic obligations under the Convention are already satisfied by existing laws and practices.

#### United Nations Security Council Resolution (UNSCR) 1540:

The resolution was adopted in April 2004, establishing binding obligations on all UN member states under Chapter VII of the UN Charter to criminalise the proliferation of WMD and enforce effective measures against the proliferation of WMD, their means of delivery and related materials. In April 2011 UNSCR 1977 extended the mandate of UNSCR 1540 by 10 years until 2021.

#### Global Initiative to Combat Nuclear Terrorism: (GICNT):

The GICNT is a key forum for multilateral cooperation launched by the United States and Russia in 2006. Australia is a partner of the GICNT which as of 30 June 2011 has 82 partner nations and four observers (UNODC, IAEA, EU and Interpol). The principles of the GICNT aim to encourage international cooperation and commitment to securing nuclear materials while improving enforcement and interdiction mechanisms to counter terrorists procuring or using radioactive or nuclear materials.

## **OUTPUT 1.3: BILATERAL SAFEGUARDS**

Nuclear material and associated items exported from Australia under bilateral agreements remain in exclusively peaceful use.

#### **Performance Measures**

- AONM is accounted for in accordance with the procedures and standards prescribed under relevant bilateral agreements
- Implementing arrangements for the bilateral agreements are reviewed and revised as necessary to ensure their continuing effectiveness

#### **Performance Assessment**

#### **Australian Obligated Nuclear Material**

On the basis of reports from bilateral treaty partners, other information and analysis, ASNO concluded that all AONM is satisfactorily accounted for. The IAEA validated through its transit matching system that, as at 7 May 2011, there were no unconfirmed nuclear material shipments to or from Australia. Based on the IAEA's Safeguards Statement for 2010, and ASNO's analysis of reports and other information from counterparts on AONM located overseas, ASNO concludes that no AONM was used for non-peaceful purposes in 2010–11. A copy of the IAEA's Safeguards Statement for 2010 is located in Appendix E.

TABLE 9: SUMMARY OF AONM BY CATEGORY, QUANTITY AND LOCATION AT 31 DECEMBER 2010<sup>19</sup>

Category	Location	Tonnes <sup>20</sup>
Depleted Uranium	Canada, European Union, Japan, Republic of Korea, United States	107 117
Natural Uranium	Canada, China, European Union, Japan, Republic of Korea, United States	22 936
Uranium in Enrichment Plants	European Union, Japan, United States	26 805
Low Enriched Uranium <sup>21</sup>	Canada, European Union, Japan, Mexico, Republic of Korea, Switzerland, United States, Taiwan	14 843
Irradiated Plutonium <sup>22</sup>	Canada, China, European Union, Japan, Mexico, Republic of Korea, Switzerland, United States	137
Separated Plutonium <sup>23</sup>	European Union, Japan	1.6
TOTAL		171 840

# TABLE 10: SUPPLY OF AUSTRALIAN URANIUM TO CUSTOMERS DURING 2010—AS DELIVERED TO CUSTOMERS' CONVERTER ACCOUNTS

Region	Tonnes UOC (U <sub>3</sub> 0 <sub>8</sub> )	% of Total
North America	2 816	36.1
Europe	2 196	28.2
Asia	2 781	35.7
TOTAL	7 793	100.0

(Source: Uranium Industry Section, Department of Resources, Energy and Tourism)

- 21 An estimated 80–90% of Australian obligated low enriched uranium is in the form of spent reactor fuel.
- 22 Almost all Australian-obligated plutonium is irradiated, i.e. contained in irradiated power reactor fuel or plutonium reloaded in a power reactor following reprocessing.
- 23 Separated plutonium is plutonium recovered from reprocessing, before return to reactors for re-use in reactors for further power generation. This plutonium is used for reactor fuel after being mixed with uranium termed mixed oxide (MOX) fuel. A significant proportion of Australian obligated separated plutonium is stored as MOX. Separated plutonium holdings fluctuate as plutonium is fabricated as MOX fuel and returned to reactors. On return to reactors the plutonium returns to the 'irradiated plutonium' category. During 2010 0.5 tonnes Australian-obligated plutonium was fabricated into MOX fuel and transferred to reactors.

<sup>19</sup> Figures are based on yearly reports to ASNO in accordance with Australia's bilateral agreements and other information held by ASNO.

<sup>20</sup> All quantities are given as tonnes weight of the element uranium, plutonium or thorium. The isotope weight of <sup>235</sup>U is 0.711% of the element weight for natural uranium and from 1 to 5% for low enriched uranium.

	Destination	U (tonnes)
Conversion	Canada	860
	China	431
	European Union <sup>25</sup>	1 358
	United States	3 277
Enrichment	European Union	747
	United States	70
Fuel Fabrication	Japan	264
	Republic of Korea	131
	United States	243
	European Union	14
Reactor Irradiation	Japan	<1
	Taiwan	33

The shipper's weight for each UOC consignment is entered on ASNO's record of AONM. These weights, subject to amendment by measured Shipper/Receiver Differences, are the basic source data for ASNO's system of accounting for AONM in the international nuclear fuel cycle. ASNO notifies each export to the safeguards authorities in relevant countries. In every case, those safeguards authorities confirmed to ASNO receipt of the shipment. ASNO also notified the IAEA of each export to non-nuclear-weapon states pursuant to Article 35(a) of Australia's safeguards agreement as well as to nuclear-weapon states under the IAEA's Voluntary Reporting Scheme. Receiving countries similarly reported receipts to the IAEA.

#### **Bilateral Agreements**

#### Reporting

Reports from ASNO's counterpart organisations were mostly received in a timely fashion and in the agreed format, which enabled analysis and reconciliation with ASNO's records. Figures provided in Table 10 and Table 11 are based on ASNO's analysis of all available information at the time of publication.

#### Australia-Russia Nuclear Cooperation Agreement

On 11 November 2010, Prime Minister Gillard and Russian President Dmitry Medvedev witnessed the exchange of notes, bringing into force the bilateral nuclear cooperation agreement.

<sup>24</sup> Figures are for transfers completed between jurisdictions from 1 January to 31 December 2010. Figures do not include transfers of AONM made within the fuel cycle of a state (or of Euratom), return of heels (residual UF6 remaining in cylinders), or damaged product.

<sup>25</sup> Includes transfers from Cameco Corp (Blind River, Canada) to Springfields Fuels, Ltd (United Kingdom).

Subsequently, on 20 June 2011, DG ASNO and the Director General of ROSATOM signed the ASNO-ROSATOM Memorandum of Understanding (MoU) on administrative arrangements. Under the Australia-Russia nuclear cooperation agreement the MoU is one of the requirements that needs to be in place before uranium supply can commence.

#### **Australia-United States Cooperation Agreement**

On 22 December 2010, Australia and the United States of America brought into force a new agreement that cements cooperation between the two countries in the area of peaceful uses of nuclear material and technology. The new expanded agreement explicitly adopts the Additional Protocol as part of the safeguards framework and provides a basis for strengthened bilateral cooperation on nuclear policy and safeguards.

#### **Australia-Euratom Cooperation Agreement**

The current nuclear safeguards agreement between Australia and the European Atomic Energy Community (EURATOM) entered into force on 15 January 1982 and is due to expire on 15 January 2012. Australia and EURATOM have been in negotiations regarding a new agreement over the past year, with ad referendum text now agreed.

#### **Australia-United Arab Emirates Bilateral Negotiations**

The Australian Government has begun negotiating a bilateral nuclear safeguards agreement with the UAE. The agreement will meet or exceed Australia's strict safeguards and non-proliferation policy requirements on uranium supply. In that regard, the UAE's proposed civil nuclear power development model is responsible and transparent, and it is hoped that this would be an example for others in the region.

#### **Multilateral Meeting on Nuclear Safeguards Agreements**

In October 2010, Australia participated in a meeting with Canada, the European Union and the US on bilateral nuclear safeguards agreements. The group has met annually since January 2008, and has included a 'document of common understandings' with regard to administration of obligation accounting and transfers of nuclear and nonnuclear material, equipment, components or technology pursuant to bilateral safeguards agreements. The document describes content of 'administration arrangements' that outline the practical application of nuclear safeguards agreements. The group is also planning to provide outreach to countries inexperienced in tracking nuclear material obligations and universalising best practice.

# OUTPUT 1.4: INTERNATIONAL SAFEGUARDS AND NON-PROLIFERATION

Contribution to the development and effective implementation of international safeguards and the nuclear non-proliferation regime.

#### **Performance Measures**

- Contribute to the strengthening of international safeguards in ways that advance Australia's interests
- Contribute to policy development and diplomatic activity by the Department of Foreign Affairs and Trade (DFAT)
- Contribute to the IAEA's Standing Advisory Group on Safeguards Implementation (SAGSI)
- Manage the Australian Safeguards Support Program (ASSP)
- Cooperate with counterparts in other countries in the strengthening of international safeguards and improvement of domestic safeguards implementation
- Provide advice and assistance to the Australian Intelligence Community in support of national and international non-proliferation efforts
- Manage ASNO's international outreach program
- Assess developments in nuclear technology

#### **Performance Assessment**

#### **Strengthening International Safeguards**

ASNO took an active part in the development and effective implementation of international safeguards during the reporting period. ASNO remained actively engaged with the IAEA at both management and operational levels, and participated in the Australian delegation to the IAEA Board of Governors meetings in September 2010, March 2011 and June 2011. ASNO also participated in the 2010 IAEA General Conference. As a result, ASNO continued to be well informed of developments and emerging issues in safeguards. This active engagement with the IAEA ensured that ASNO's work program remained relevant to the international non-proliferation agenda.

ASNO assessed that the IAEA safeguards system effectively fulfilled its task of verifying the non-diversion of significant quantities of nuclear material subject to IAEA safeguards. The IAEA has noted that inadequately developed State Systems of Accountancy and Control (SSAC) in some states is an ongoing safeguards implementation issue. ASNO has sought to address this important matter by working with regional and international counterparts to develop the skills and capacity of regional safeguards authorities through training and support.

ASNO is in the process of developing an SSAC good practices paper with the Asia-Pacific Safeguards Network (APSN), which will serve as a valuable resource for other SSACs in the region and internationally. The paper will describe the safeguards implementation experiences and lessons learnt from the perspective of the community of Asia-Pacific nations that make up APSN. It is intended that this paper will serve as an example to promote good safeguards implementation practices internationally and will complement and support the work in the IAEA to develop new safeguards implementation guidelines.

#### Contribution to DFAT policy development and diplomatic activity

A number of major safeguards issues arose during the year, and ASNO has been well-placed to contribute to policy development and diplomatic activities by providing analysis and advice.

ASNO has a close and supportive working relationship with the Australian Mission in Vienna, particularly with the Australian Ambassador in the role of Australian Governor on the IAEA Board of Governors. ASNO plays a major role in providing the Mission with timely and comprehensive advice on IAEA reports and briefing materials. ASNO analyses are frequently shared with the IAEA Secretariat and with like-minded governments represented in Vienna and other key capitals and are held in high regard for their specialist expertise in examining often complex safeguards issues.

Issues dealt with by ASNO included:

- Syria's reported undeclared reactor program
- Iran's safeguards breaches, including analysis of nuclear developments in Iran and advice to the Minister of Foreign Affairs on handling these issues in the IAEA Board of Governors and elsewhere
- assessment of nuclear developments in the DPRK
- development of the Safeguards Resolution for the IAEA General Conference.

#### **IAEA Standing Advisory Group on Safeguards Implementation**

SAGSI is the international group of experts appointed by and advising the IAEA Director General on safeguards issues. During the reporting period Dr Craig Everton served on SAGSI.

Topics examined by SAGSI during the year included:

- the long-term strategic plan of the IAEA Department of Safeguards, including the conceptual framework for making the IAEA safeguards system fully informationdriven (see report on IAEA's state-level concept on page 15)
- knowledge management in the IAEA Department of Safeguards
- review of the new Guidelines for States Implementing Safeguards Obligations under Comprehensive Safeguards and the Additional Protocol
- the safeguards significance of uranium derived from non-conventional sources (e.g. mineral sands with low absolute uranium concentrations)

- the safeguards significance of high purity uranium ore concentrate production
- new cost calculation methodology for safeguards
- changes to the annual IAEA Safeguards Implementation Report (SIR).

#### **Australian Safeguards Support Program**

The resources available to the IAEA are not sufficient to allow all necessary safeguards research and development programs to be conducted 'in-house'. Safeguards are an evolving discipline and the Australian Safeguards Support Program (ASSP) assists the IAEA develop the concepts, equipment and procedures needed to meet new challenges in a cost-effective way. The ASSP comprises collaborative work with ASNO, ASNO's counterparts and expert groups on a number of safeguards projects formally agreed with the IAEA. ASNO is the national manager for the ASSP, coordinating activities with other Australian agencies as well as undertaking several tasks internally. These projects are outlined below.

#### **Re-examination of basic safeguards implementation parameters**

ASNO is in discussion with the IAEA about the next assignment to be undertaken under this important and long-standing task. Historically, projects under this task have made a significant contribution to the effectiveness of safeguards and they have also represented major professional development exercises for ASNO staff.

#### Support for information review and evaluation

ASNO has worked with the IAEA's Division of Safeguards Information Management (SGIM) to improve access to open source information on nuclear activities and developments.

#### Analytical services for environmental sampling

Environmental sampling is an important safeguards measure that enhances the IAEA's capability to detect undeclared nuclear activities. Work on this important project by ANSTO is ongoing.

# Experimental investigation of behaviour of trace elements in uranium during the concentration and conversion processes

While the project is ongoing there was no significant progress during the reporting period. Discussions were held with the IAEA Task Officer on the best way to advance this project.

# Use of multi-sensor data for monitoring and detecting signatures relevant to the nuclear fuel cycle

This project remains open, but there were no significant activities during the reporting period.

#### Updates to fuel cycle manuals

In 2008, the IAEA proposed a task related to updating elements of the basic fuel cycle training manuals used in the training of IAEA inspectors. The IAEA requested Australian help with the preparation of a new manual relating to the mining and milling of uranium.

ASNO has provided the IAEA an initial draft of material that could be used to produce the manuals.

Geoscience Australia is currently producing text for inclusion in the manual. During the reporting period a substantial block of text relating to types of uranium ore and uranium deposit types was conveyed to the Agency. Other work is ongoing.

#### **Proliferation Analysis Workshop**

The third annual Proliferation Analysis Workshop was conducted by the ASSP from 21 to 23 June 2011 in Vienna. The workshop participants were drawn from the support and operations divisions of the IAEA Safeguards Department.

The Australian team consisted of one analyst from the Department of Defence, one from the Office of National Assessments and one from ASNO. The Australian Permanent Mission to the IAEA provided active support and assistance for the running of the workshop.

The focus of the workshop was on 'tradecraft' for proliferation analysis. Participants explored not just analytical tools available, but also the techniques for combining information from disparate sources to provide an overall picture of the objects of study.

The IAEA considers that these workshops enhance the analytical culture, information exchange and capabilities both in support and operations Divisions.

#### New Australian Safeguards Support Program tasks in the reporting period

#### **Network of analytical laboratories**

The University of Western Australia commenced a major program to become a member of the IAEA's network of analytical laboratories. A first set of reference samples from the IAEA was analysed during the reporting period and the results were conveyed to the IAEA. Work on this new project is ongoing.

#### All-source information analysis for safeguards purposes

ASNO, through the ASSP, has previously undertaken a number of consultancy tasks for the IAEA supporting the implementation and evolution of safeguards information analysis methodologies and practices. In June 2011, this collaboration was restarted with Mr Michael East of ASNO undertaking a four week consultancy with the Division of Safeguards Information Management.

#### **Cooperation with other States Parties**

ASNO actively strengthened contacts with other safeguards agencies and international safeguards practitioners, including from China, Indonesia, Japan, Republic of Korea, Thailand, Vietnam and the United States.

ASNO has been working with its Philippine counterpart (the Philippine Nuclear Research Institute, PNRI) on ratification and implementation of the Additional Protocol (AP) to its safeguards agreement with the IAEA since March 2002. The Philippines ratified the AP during the previous reporting period and was required to submit its initial report under the AP in August 2010. ASNO's Mr Russell Leslie provided direct support to PNRI in ensuring that the initial declaration under the AP included the full range of materials, equipment and activities. This tranche of assistance was the culmination of eight years of close cooperation between ASNO and PNRI.

ASNO staff presented papers at the July 2010 Institute of Nuclear Materials Management (INMM) Annual Meeting in Baltimore and at the May 2011 Budapest European Safeguards Research and Development Association (ESARDA) safeguards meeting.

#### **International Outreach**

ASNO continued its international outreach activities to assist countries in the region with the fulfilment of their non-proliferation and physical protection obligations. Assistance and training have been provided to professionals in a range of countries over the past 12 months including lecturing and assisting in international State System of Accountancy and Control training courses in Tokai, Japan (December 2010) and Oak Ridge, USA (April 2011) and in a Commodity Identification Training course in Pattaya, Thailand, August, 2010.

ASNO is working with DFAT and the IAEA towards achieving actions agreed at the 2010 NPT Review Conference including having all States Parties to the NPT conclude and bring into force Comprehensive Safeguards Agreements and Additional Protocols and, for those states with limited nuclear activities, amendments to Small Quantities Protocols. Towards achieving that end, the Australian delegation to the Pacific Island Forum Regional Security Meeting (Suva, Fiji, 2 June 2010) made a presentation on non-proliferation-related follow-up actions from the NPT Review Conference of particular relevance to Forum Island Countries. The meeting encouraged Pacific Island Forum Members to take steps to bring into force Comprehensive Safeguards Agreements, Additional Protocols and new Small Quantities Protocols.

ASNO has also taken steps, in cooperation with the IAEA, to work with some African countries to promote effective safeguards, nuclear security and export control oversight, particularly in those African countries with developing uranium mining interests. ASNO is also engaging with Australian uranium mining companies operating in Africa to help with promoting these activities.

An initiative that has made a major contribution to ASNO's ongoing efforts to improve and strengthen the non-proliferation regime in the Asia-Pacific region, is the Asia-Pacific Safeguards Network (APSN). The objective of APSN, established in 2009, is to improve the quality, effectiveness and efficiency of safeguards implementation in the Asia-Pacific region, which has provided ASNO with an opportunity to enhance its cooperation in areas such as training, professional development and the sharing of experiences. For example, ASNO is coordinating the work of APSN's safeguards infrastructure, implementation and awareness-raising working group.



Participants at the ad hoc meeting of the Asia-Pacific Safeguards Network (APSN), Singapore 25 March 2011.

### **OUTPUT 1.5: CWC IMPLEMENTATION**

Regulation and reporting of Australian chemical activities in accordance with the Chemical Weapons Convention, and strengthening international implementation of the Convention.

#### **Performance Measures**

- Australia's obligations under the Chemical Weapons Convention (CWC) are met
- Effective regulation of CWC-related activities in Australia, involving the chemical industry, research and trade
- Contribute to strengthening CWC verification and implementation, including through cooperation with the Organisation for the Prohibition of Chemical Weapons (OPCW) and with CWC States Parties
- Contribute to enhancing regional CWC implementation through targeted outreach

#### **Performance Assessments**

#### **Meeting CWC Obligations**

ASNO maintained Australia's strong record of performance in meeting its CWC obligations. Accurate and timely annual declarations and notifications were provided to the OPCW as follows:

- Declaration of imports and exports of CWC-Scheduled chemicals and of the 39 facilities with CWC-relevant chemical production, processing or consumption activities during 2010 (declared in March 2011)
- Article VI declaration of anticipated activities of seven CWC-Scheduled chemical facilities during 2011 (declared in September and October 2010)
- Article X, paragraph 4, declaration of Australia's national programs for protection against chemical weapons (declared in April 2011)
- Verification Annex, Part IV(B) submission of the destruction and disposal plan for 144 old chemical weapon (OCW) projectiles, of United States origin, buried after WWII at Columboola, QLD
- Verification Annex, Part IV(B) notification of the completion of destruction activities for 300 250 pound empty OCW munitions discovered at Marrangaroo, NSW
- Verification Annex, Part IV(B) declaration of the discovery and request for retention (for educational and display purposes) of an empty WWII 75 mm projectile previously held at a Defence Artillery Museum, Manly, NSW
- Responses to OPCW Third Person Notes including routine clarification of the operational status of chemical plants
- Routine responses to OPCW notifications and amendments/corrections to inspector details and deletions or additions to the OPCW inspectorate.

PERFORMANCE



Facility and ASNO/DFAT representatives with the OPCW Inspection Team during a routine industry inspection at a chemical plant in NSW, December 2010.

Since 1997, the OPCW has conducted 37 Article VI routine facility inspections in Australia in accordance with the provisions under the CWC. In the reporting period, a subsequent inspection of a Schedule 1 facility and four inspections of 'Other Chemical Production Facilities' were conducted. All inspections proceeded smoothly. The OPCW Inspection Team verified Australia's declarations as well as the absence of undeclared CWC-Scheduled chemical production, in accordance with the inspection mandates. ASNO facilitated these inspections and received excellent support and cooperation from industry.

ASNO, together with Defence, facilitated an OPCW inspection in September 2010 at Columboola, QLD, the site where 144 WWII old chemical weapon projectiles (containing sulphur mustard) were discovered in June and July 2010. The OPCW verified Australia's declaration, in particular that the quantities, types and calibres of the munitions were consistent with the declaration (see report on OCWs destruction on page 24). The OPCW confirmed Australia's assessment that the OCW were not usable as chemical weapons.



OPCW inspectors preparing to verify OCW munitions at Columboola. Image courtesy of Defence.

#### Legislation and Regulation

The permit systems under the *Chemical Weapons (Prohibition) Act 1994* and Regulation 5J of the Customs (Prohibited Imports) Regulations 1956, continued to operate well. Table 12 provides statistics for permits issued as of 30 June 2011 and permit activities during the reporting period.

CWC- Scheduled Chemicals	CW(P) Act 1994	Туре	Permits at 30 June 2011	New Permits issued 2010–11	Re-Issued Permits 2010–11	Permits not re-Issued 2010–11	Import Permits 2010–11
Schedule 1	s19(4)	Production (Protective)	1				
	s19(5)	Production (Research)	9	1	1		0
	s19(6)	Consumption	8	1			
Schedule 2	s18(1)	Processing	12		4		
	s18(1)	Consumption				1	58
Schedule 3	s18(1)	Production	3				

#### TABLE 12: PERMITS FOR CWC-SCHEDULED CHEMICAL FACILITIES AND IMPORTERS

#### **Cooperation with the OPCW and CWC States Parties**

ASNO continued to provide ongoing technical and policy guidance to Australia's representatives at its embassy in The Hague in preparation for OPCW Executive Council meetings, industry cluster meetings and informal consultations. Issues under discussion during the reporting period included:

- Article VI revised policy guidelines (Industry Inspections)
- enhancing the site selection methodology for Other Chemical Production Facilities
- the OPCW tenure policy
- CWC universality
- the final extended destruction deadlines for chemical weapons (see report on chemical weapons destruction deadline on page 27)
- Article X of the CWC (Assistance and Protection)
- Article XI of the CWC (Economic and Technical Development).

A revised policy for Article VI inspections has been proposed and continues to be discussed during informal consultations at the OPCW. Increased numbers of declared facilities in Asia and Latin America have resulted in an increase in the number of States Parties and facilities eligible to receive inspections under the CWC. An enhanced site selection methodology (SSM) for Other Chemical Production Facilities will be considered by the Executive Council in July 2011. Australia supports increased numbers of inspections to ensure that verification of new and existing facilities is based on the risk posed to the object and purpose of the CWC, while satisfying the requirement for equitable geographical distribution of inspections.

The OPCW tenure policy has, and is, undergoing review. This is, in part, due to the winding down of some chemical weapon destruction activities and the future monitoring and verification requirements for chemical weapon stockpiles remaining beyond April 2012. The OPCW is a non-career organisation and as such the total length of service for Technical Secretariat staff is seven years, unless extensions have been granted by the Director General of the OPCW. The staffing cycle and a likely decrease in chemical weapon destruction-related activities have required a review of the tenure policy. Australia supports a tenure policy that ensures the preservation and expansion of knowledge, competence and professionalism.

Australian experts from ASNO and Defence Science and Technology Organisation attended the following meetings held in The Hague: the Article XI Workshop (24-25 November 2010), the 12th Annual Meeting of CWC National Authorities (27-28 November 2010); and the 15th Conference of the States Parties (30 November to 4 December 2010). The Conference granted Libya an extension of the intermediate deadlines for the destruction of its Category 1 chemical weapons (C-15/DEC.3, dated 30 November 2010).

Australia worked to enhance the OPCW's role in reducing the threat of, and in preparing to respond to, chemical terrorism. Australia concluded its facilitation of the open-ended working group on terrorism (OEWGT) in February 2011 with the delivery of a report to the 63rd session of the Executive Council. During the period of Australia's facilitation, the OEWGT has progressively considered the relevance of the implementation of key articles of the CWC (i.e. Articles IV, V, VII, X and XI) to the OPCW's contribution to the global efforts in this field. Australia also participated in a practical exercise ASSISTEX 3 in Tunis, Tunisia in October 2010 and a table-top exercise on the preparedness of States Parties to prevent terrorist attacks involving chemicals which took place in Warsaw, Poland in November 2010.

Upon request, the United States Government provided advice on destruction options for the 144 World War II old chemical weapon projectiles (of US origin) discovered on private property in Columboola Queensland. In September 2010, US experts visited Australia to characterise the projectiles, using Portable Isotopic Neutron Spectroscopy analysis and X-ray spectroscopy. 140 of the OCW munitions were found to contain chemical warfare agent (sulphur mustard). From 6 April to 18 May 2011, all of these projectiles were destroyed in a Transportable Detonation Chamber, the components of which were imported from the United States (see report OCWs destruction on page 24).

To further demonstrate Australia's firm commitment to the CWC and the work of the OPCW, in April 2011 Dr Robert Floyd, Director General, ASNO, visited the OPCW headquarters in The Hague and held discussions with the Director-General, Ambassador Ahmet Üzümcü. Dr Floyd and Mr Peter Hooton, Assistant Secretary, Arms Control and Counter-Proliferation Branch, together with Embassy officials represented Australia at a seminar on "The OPCW's Contribution to Security and Non-Proliferation of Chemical Weapons" held on 11-12 April 2010.

#### **Domestic Outreach**

ASNO undertook consultation and outreach with several facilities to strengthen collaboration with industry. The outreach visits focussed on promoting greater awareness of the CWC, regulatory obligations and preparing industrial sites for possible OPCW inspections.

ASNO continued participating in relevant meetings of the National Government Advisory Group on Chemical Security with other Australian Government representatives.

ASNO continued to monitor Australian Bureau of Statistics (ABS) chemical trade data and liaised with Customs to reduce the occurrence of misclassified chemicals. Customs has taken measures to address this issue by ensuring that correct codes are applied to chemical trade. Such measures help detect unauthorised trade and improve the accuracy of trade statistics for CWC-Scheduled chemicals published by the ABS.

As part of outreach efforts to ensure traders of CWC-Scheduled chemicals apply the correct tariff and Australian Harmonised Export Commodity Classification codes, ASNO distributed copies of its industry brochures and a CD for chemical traders. Copies of these publications are available on request or from ASNO's website (www.dfat.gov.au/cwco).



*OPCW, Facility and ASNO representatives during a routine industry inspection at a declared chemical plant in NSW, December 2010.* 

### **OUTPUT 1.6: CTBT IMPLEMENTATION**

Development of verification systems and arrangements in support of Australia's commitments related to the Comprehensive Nuclear-Test-Ban Treaty.

#### **Performance Measures**

- Australia's obligations under the Comprehensive Nuclear-Test-Ban Treaty (CTBT) are met
- Legal and administrative mechanisms which support Australia's commitments related to the CTBT are effective
- Contribute to the development of CTBT verification, including through the work of the CTBT Organization (CTBTO) Preparatory Commission
- Contribute to Australia's CTBT outreach efforts

#### **Performance Assessment**

#### **International Obligations**

Of the 21 facilities that Australia will host for the CTBT International Monitoring System (IMS), 17 are in place and certified as operating to CTBTO technical specifications. One more facility, the Macquarie Island radionuclide station, is operating in testing and evaluation mode pending certification. A list of Australia's IMS facilities and their status is at Appendix F.

Specific advances during 2010–11 in relation to Australian hosted IMS stations included:

- the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) completed construction of a radionuclide monitoring station on Macquarie Island. The station is operational, but is yet to be certified against CTBTO standards. During the year, ASNO consulted with the Tasmanian Government and ARPANSA on an MOU on use of land for the Macquarie Island station. An MOU was settled at 30 June 2011, subject to final signature
- ARPANSA commenced construction of a further radionuclide monitoring station at Mawson Base, Australian Antarctic Territory, with completion expected in early 2012
- construction of an infrasound monitoring station on the Cocos Islands was advanced during the year by Geoscience Australia, with the station expected to be operational in late 2011.

Installation of the final Australian IMS station, at Davis Base, Australian Antarctic Territory, requires considerable planning and preparations, and could take several years, to complete.

#### Legal and Administrative Measures

ASNO continues to fund Geoscience Australia to carry out nuclear test monitoring through its network of seismic stations. This arrangement, set out in a Letter of Understanding between Geoscience Australia and DFAT, has been administered by ASNO on behalf of DFAT since 1 July 2000. ASNO is satisfied that Geoscience Australia has met its requirements under the Letter of Understanding during the reporting period. ASNO and Geoscience Australia again reviewed the arrangement during the year. It was found that the arrangement remains adequate for Australia's requirements at this time.

The operation of a National Data Centre (NDC) to verify an in-force CTBT will require additional activities. ASNO, ARPANSA and Geoscience Australia, working with the Department of Defence, have continued during the year a review of Australia's future NDC requirements.

#### **Nuclear Test Ban Verification**

While more than 80% of CTBT IMS stations are now in place worldwide, further preparatory work is needed to bring the Treaty's verification to a good level of readiness. ASNO continues to contribute to the verification work of the CTBTO in conjunction with Australia's permanent Mission in Vienna, and with technical specialists from Geoscience Australia and ARPANSA.

When the CTBT enters into force, it will provide for on-site inspections (OSI) to determine whether a nuclear explosion has taken place in a particular area. ASNO's Mr Malcolm Coxhead, as the Task Leader for the elaboration of an Operational Manual on the conduct of OSI, continued to chair discussions on this subject at the CTBTO Preparatory Commission's technical working group. Mr Coxhead contributed also to work on OSI as co-chair of workshops meeting in Vienna in November 2010, and in May 2011 as part of an Expert Advisory Mechanism on planning for a major inspection exercise in 2014.

Consistent with principles set out in the CTBT, activities associated with the development of CTBT verification are funded primarily from the contributions of States Signatories. This includes training of people involved with the work of the Treaty, and participation in CTBTO workshops. ASNO coordinates the involvement of Australians in these activities, and during the year four Australians participated.

ASNO experts participated also in a CTBTO hosted conference entitled CTBT: Science and Technology 2011 in Vienna, Austria in June 2011. Around 750 scientists, diplomats, scientific representatives to the CTBTO's policy-making organs, representatives of civil society and the media attended, with participants discussing advances in science and technology relevant to the Treaty's verification system and explored scientific applications of the CTBT verification infrastructure. Australia's scientific contribution to the conference, focussed on the atmospheric transport of radionuclides following the Fukushima Dai-ichi Nuclear Power Plant accident, with a poster co-authored by experts at ARPANSA and Geoscience Australia. The role of the CTBT's IMS in responding to events such as the Fukushima Dai-ichi nuclear accident was a major theme of the Conference. Presenters from nuclear safety agencies in several countries provided a detailed account of how IMS data had been used in preparing public health advisories, and for analysing the sequence of events at Fukushima Dai-ichi. Presenters also drew lessons that should help to improve the future operation of the CTBT's verification system.

#### Outreach

DG ASNO visited Indonesia in late March 2011 and met with officials from the Ministry of Foreign Affairs, the Nuclear Energy Regulatory Agency (BAPETEN) and members of Indonesia's Parliament to discuss its proposed ratification of the CTBT. A bill for ratification is now being debated within Commission I (Foreign Affairs, Defence and Information) of Indonesia's House of Representatives. DG ASNO met key Commission I members to discuss the CTBT ratification bill and related issues.



ASNO's Malcolm Coxhead leading discussion on operational procedures for on-site inspection for the CTBT (Photo: Copyright CTBTO).

# OUTPUT 1.7: OTHER NON-PROLIFERATION REGIMES

Contribution to the development and strengthening of other weapons of mass destruction non-proliferation regimes.

#### **Performance Measures**

- Provide support and assistance to Australia's Permanent Mission to the Conference on Disarmament (CD) in Geneva in their efforts to advance Australia's nonproliferation and disarmament objectives, in particular, on seeking to commence the negotiation of an internationally verifiable Fissile Material Cut-off Treaty (FMCT)
- Support other developments in the field of non-proliferation and disarmament that are relevant to Australia's interests

#### **Performance Assessment**

#### **Fissile Material Cut-off Treaty**

To help build confidence and momentum in the Conference on Disarmament (CD) towards the commencement of FMCT negotiations, the permanent missions of Australia and Japan to the CD arranged for three 'side-event' meetings during the year for delegations and capital-based experts to discuss aspects of an FMCT. In hosting the events, Australia and Japan were motivated by UN Secretary General Ban Ki-moon's call to the CD on 26 January 2011 for 'a basic process to educate each other and build trust which will inform and facilitate the formal process once the CD adopts its work programme'. Three-day meetings were held in February, March and May–June 2011, attracting participation by a significant number of CD Member States. The meetings examined possible definitions for fissile material relevant to a treaty and possible mechanisms for verifying an obligation to not produce such material for nuclear weapons. Reports on the discussions will be provided to CD plenary meetings. ASNO experts participated actively in each of the meetings, and ASNO has supported Australia's mission in Geneva in planning and reporting for the meetings.

The side events provided the opportunity for detailed, expert discussions in the CD on issues relating to the proposed FMCT. The CD's extended impasse has eroded knowledge and capacity within CD delegations and the meetings encouraged participation by capital-based experts. The side events clarified where substantive differences remained notably on definitions, verification mechanisms, scope of an FMCT and institutional issues. In this way, the side events provided a renewed understanding of the challenges to be faced in negotiating the proposed FMCT.

ASNO provided further expert support to DFAT on FMCT issues during the year, including in relation to initiatives pursued through the newly established Non-Proliferation and Disarmament Initiative.

#### **Verification for Nuclear Disarmament**

New mechanisms will be needed to verify future nuclear disarmament steps. ASNO's 2007–08 and 2008–09 Annual Reports described work by the UK and Norway to develop concepts and tools for verifying the dismantlement of nuclear weapons, and reported on a Workshop in Canberra in 2008 that examined how Australia might contribute. As a next step in developing Australia's engagement in this work, ASNO arranged a further expert-level exchange at Aldermaston in the UK in June 2011. Experts from ASNO and ANSTO reviewed UK research efforts and the UK's work with Norway to develop methods and tools for inspection of weapon dismantlement, and discussed opportunities for Australia to engage further.

## **OUTPUT 1.8: ADVICE TO GOVERNMENT**

Provision of high quality, timely, relevant and professional advice to Government.

#### **Performance Measures**

- Provide policy advice, analysis and briefings which meet the needs of Ministers and other key stakeholders
- Contribute to the development of Australia's policies by DFAT in the area of WMD arms control, disarmament and non-proliferation
- Cooperate on technical issues of common interest with departments and agencies such as ANSTO, ARPANSA, Department of Defence, Department of Resources, Energy and Tourism, and the Australian Intelligence Community

#### **Performance Assessment**

ASNO has specialist knowledge in complex policy and technical areas dealing with nuclear non-proliferation, and has substantial experience in: verification methods; domestic, bilateral and international safeguards; nuclear technology and the nuclear fuel cycle; nuclear security; and CWC and CTBT verification issues. ASNO draws on this expertise and an international network of contacts in agencies and organisations to provide high quality technical and policy advice to Government and other bodies. ASNO provides the Government with advice on nuclear non-proliferation safeguards, from both international and domestic perspectives, together with expert advice across the range of WMD technologies.

During the year, ASNO provided advice and analysis on a range of non-proliferation issues and developments. ASNO has analysed and reported on nuclear programs of concern, in particular that of Iran, but also developments in Syria, the DPRK and Burma. In connection with Australia's bilateral nuclear safeguards agreements, ASNO has provided advice on new agreements with the United States and Russia, both of which entered into force during the year and continued to advise on the development of a renewed agreement with Euratom. ASNO also advised on the development of a new bilateral safeguards agreement with the United Arab Emirates and commenced negotiations on a treaty in May 2011. ASNO prepared approximately 15 ministerial submissions during the year, and provided submissions and oral briefing for Ministers, departments and Parliament on specific issues.

ASNO provided special briefing and additional assistance to the Australian Missions to the IAEA and CTBTO (in Vienna), to the OPCW (in The Hague) and to the CD (in Geneva), as well as to Australian missions elsewhere, particularly in Washington, London, Moscow, and Beijing.

ASNO has worked closely with other departments on a range of issues, including destruction of old chemical weapons, piracy in the Gulf of Aden, and to ongoing development of CTBT verification. ASNO participates in the transport working group of the Uranium Industry Framework, a government-industry forum coordinated by the Department of Resources, Energy and Tourism, designed to assist in the development of a sustainable, safe, secure, socially and environmentally responsible uranium industry. The goal of the transport working group is to address impediments to transport of uranium, both domestically and internationally.

### **OUTPUT 2.1: PUBLIC INFORMATION**

Provision of public information on the development, implementation and regulation of weapons of mass destruction non-proliferation regimes, and Australia's role in these activities.

#### **Performance Measures**

Effective public education and outreach

#### **Performance Assessment**

ASNO works to ensure Australia's WMD non-proliferation objectives are widely understood. This involves liaison with industry, tertiary institutions and nongovernmental institutions, including presentations at various national and international fora. Activities during the year through which ASNO pursued public information objectives included:

- the annual conference of the Australasian Institute of Mining and Metallurgy (AusIMM) in June 2011
- a strategic policy workshop entitled Australia's Nuclear Choices Australia's uranium trade: the foreign and domestic challenges of a contentious export. The workshop is part of a larger collaboration on nuclear policy between the Griffith Asia Institute, Australian National University, Lowy Institute for International Policy and Department of Defence.

At the AusIMM conference ASNO gave two presentations: a keynote presentation by DG ASNO on Australia's uranium export policy; and a parallel session presentation by Mr Michael East (Safeguards Officer) on IAEA safeguards verification at uranium mines.

ASNO continued its series of seminars on non-proliferation issues for government officials. The aim of the seminars is to provide clear, understandable and accurate information on concepts relevant to officials involved in Australia's broader non-proliferation and counter-proliferation efforts.

ASNO has an active program of preparing papers and presentations for conferences and professional journals. Many of these are available on ASNO's website. Details can be found under Appendix G.

ASNO's website, www.dfat.gov.au/asno/, contains detailed information on Australia's non-proliferation policies, treaty and statutory obligations and safeguards agreements as well as notification and permit application forms. The Current Topics section of this, and previous ASNO Annual Reports, is included as a public information source.

83



President of KINAC, Mr Chang Sang-ku (fourth from the right) and Director General ASNO, Dr Robert Floyd (fourth from the left) along with other representatives from KINAC and from the Australian Embassy in Seoul after discussions on nuclear safeguards and non-proliferation.