

## **Verification of Nuclear Material in Non-Proscribed Military Use by a State with a Comprehensive Safeguards Agreement:**

### **Legal and related aspects**

#### **Supplement to the paper of 8 October 2021 on IAEA Safeguards, the Naval “Loophole” and the AUKUS Proposal <sup>1</sup>**

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*This is a revision of the paper dated 12 October 2021, “Can Verification Measures Apply to Nuclear Material in Non-Proscribed Military Use by a State with a Comprehensive Safeguards Agreement?”*

Under comprehensive safeguards agreements (CSAs) based on IAEA document INFCIRC/153, non-nuclear-weapon states (NNWSs) can conclude arrangements with the IAEA for the “non-application” of safeguards to nuclear material in a non-proscribed non-peaceful use, that is, a military use that is not for nuclear weapons or other nuclear explosive devices. This reflects the provisions of the NPT, which prohibits a NNWS acquiring nuclear weapons or other nuclear explosive devices, and requires the application of IAEA safeguards on all nuclear material in the state in peaceful use. By inference, the NPT allows a NNWS to have nuclear material in non-explosive military use outside IAEA safeguards.

The relevant provision of INFCIRC/153 is paragraph 14. Paragraph 14 provides for the “non-application” of “the safeguards provided for in the Agreement”, but only while the nuclear material is in the non-proscribed military use. Safeguards are to apply again as soon as the material is re-introduced into a peaceful nuclear activity. If the state wishes to make use of paragraph 14 it must inform the IAEA, making it clear the material will not be used for production of nuclear weapons. The state is required to conclude an arrangement with the Agency, identifying the period or circumstances during which safeguards will not be applied, and keeping the Agency informed of the total quantity and composition of such unsafeguarded nuclear material. The arrangement should “only relate to temporal and procedural provisions, reporting arrangements, etc.”, but should not involve any approval or classified knowledge of the military activity.

This paper considers (a) whether the IAEA is excluded from applying any safeguards or other verification activity in relation to nuclear material subject of a paragraph 14 arrangement; and (b) the scope of verification under paragraph 14.

### **Is the IAEA excluded from applying safeguards or other verification activity to nuclear material in non-proscribed military use?**

Here it is necessary to consider the provisions of the IAEA Statute as well as the NPT and the relevant safeguards agreement.

#### ***IAEA Statute***

A threshold question is whether the IAEA is excluded from applying safeguards measures to nuclear material in non-proscribed military use because of provisions in the Statute that the Agency is not to further any military purpose. The reference to *not furthering any military purpose* appears in several places in the Statute, the principal provisions being Articles II and III.A.5.

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1. <https://vcdnp.org/wp-content/uploads/2021/10/Safeguards-and-naval-fuel-JC-211008.pdf>.

Article II provides that:

... so far as it is able, (the Agency shall ensure) that assistance provided by it ... or under its supervision or control is not used in such a way as to further any military purpose.

Article II does not refer specifically to safeguards. The application of safeguards can hardly be considered as “assistance” provided by the Agency, so this provision in itself does not affect the application of safeguards.

The reference to military purpose most relevant to this discussion is Article III.A.5, which specifically addresses the IAEA’s authority to apply safeguards. This Article has two parts. First, the Agency is authorised to:

... establish and administer safeguards designed to ensure that (nuclear materials etc.) made available by the Agency or ... under its supervision or control are not used in such a way as to further any military purpose.

Second, Article III.A.5 authorises the Agency:

... to apply safeguards, at the request of the parties, to any bilateral or multilateral arrangement, or at the request of a State, to any of that State’s activities in the field of atomic energy.

The interpretation of Article III.A.5 was considered by the IAEA Board of Governors in 1983. This arose from a request by Argentina for a study on “the statutory legitimacy of non-explosive military applications of nuclear material subject to the Agency’s safeguards system”. Argentina argued that paragraph 14 of INFCIRC/153 was inconsistent with Article III.A.5 of the Statute because to allow nuclear material to be removed from safeguards for military use would be furthering a military purpose. The Board asked the IAEA Secretariat to study and advise on this and related issues. The Secretariat’s study is set out in IAEA document GOV/INF/433 of 21 January 1983.<sup>2</sup>

The Secretariat advised that the injunction against furthering any military purpose applies only to Agency projects (the subject of the first part of Article III.A.5), and does not apply in the case of safeguards agreements concluded at the request of a state or states (the second part of Article III.A.5).

Other points in the Secretariat’s advice included that:

... the Agency’s functions under the Statute extend only to peaceful uses of nuclear energy.  
and

Military uses of nuclear material while it is covered by an INFCIRC/153-type agreement would not be in accordance with the terms of the agreement. Prior to any such uses the procedures of paragraph 14 would have to be invoked.<sup>3</sup>

In accordance with the distinction between safeguards for Agency projects and safeguards at the request of states, the reference in the first quote to *functions under the Statute* indicates this pronouncement relates only to Agency projects. The second quote relates to safeguards at the request of states, and is a paraphrase of paragraph 14 of INFCIRC/153.

A key point in the Secretariat’s advice was that:

The application of the Statute in matters relating to safeguards has been the province of the Board throughout the Agency’s history. ... Various statements made at the Conference on the Statute confirm the Board’s role and authority in determining the form and extent of particular safeguards.<sup>4</sup>

Of direct relevance to the discussion in this paper, this last-mentioned aspect of the Secretariat’s advice was demonstrated some years later, when the 1991 *Quadripartite*

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2. This document does not appear to be available on the IAEA website.

3. GOV/INF/433 para. 21.

4. GOV/INF/433 para. 8.

*Agreement* was concluded between the IAEA, Argentina, Brazil and ABACC.<sup>5</sup> The Quadripartite Agreement is the INFCIRC/153-type agreement concluded by Argentina and Brazil pursuant to the NPT. The wording of the Quadripartite Agreement is slightly different to INFCIRC/153 – in place of the usual qualification that safeguards under the agreement apply to all nuclear material in peaceful use, instead safeguards under the Quadripartite Agreement apply to all nuclear material in all nuclear activities. In parallel, Argentina and Brazil concluded the Guadalajara Agreement<sup>6</sup> in which naval propulsion is described as a peaceful application of nuclear energy.

The effect of the Quadripartite Agreement is to remove the reference to a category of activity, *non-proscribed military activities*, for which safeguards can be disappplied. Instead, in the agreement's equivalent of paragraph 147, a State Party and the Agency may conclude an arrangement for *special procedures* for nuclear material used for propulsion. While the agreement does not specify what these special procedures might be, this agreement clearly demonstrates that in the case of safeguards requested by states the IAEA is not constrained by the references in the Statute to military activities, and can give effect to what the states request.

### ***NPT***

The provisions of the IAEA Statute and the NPT differ with respect to military activities. While the Statute divides nuclear activities into two categories, *peaceful* and *military*, the NPT provides for three categories: *peaceful*, *nuclear weapons* (proscribed) and, by inference, *non-peaceful non-proscribed* (permitted).

The NPT prohibits a NNWS from acquiring nuclear weapons (Article II), and requires a NNWS to accept IAEA safeguards on all nuclear material in peaceful nuclear activities (Article III.1). The consequence of these provisions is that the NPT permits a NNWS to use nuclear material in a non-proscribed (that is, non-explosive) military activity, and it is not obligatory to accept safeguards on nuclear material in such an activity.

Though not indicated in the NPT, this approach was taken to allow for the possibility of naval propulsion reactors. It is understood the reason for leaving this area outside safeguards was to ensure protection of classified information.

The result is a somewhat problematic situation, which the NPT negotiators did not address adequately, namely, that all the nuclear material in a NNWS is subject to the prohibition against nuclear weapons, but potentially some of this material – the material in use as naval reactor fuel – is not covered by safeguards, so *prima facie* the IAEA is not able to verify that this material is not diverted to nuclear weapons. This could, depending on the circumstances, jeopardise the object and purpose of the NPT.

### ***Comprehensive safeguards agreements***

Reflecting the wording of the NPT, INFCIRC/153 provides that safeguards apply to all the nuclear material in a NNWS that is in all peaceful activities. Paragraph 14 allows for the non-application of *the safeguards provided for in the agreement* to nuclear material while it is in non-proscribed military use. This leaves the problem inherent in the NPT, that *prima facie* the IAEA is not in a position to verify this material is not diverted to nuclear weapons.

The negotiators of INFCIRC/153, the Safeguards Committee established by the IAEA Board of Governors, was very mindful of this problem. The Committee recognised the need to protect classified information, but was also anxious to avoid paragraph 14 becoming a loophole for

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5. ABACC is the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials, the regional safeguards agency established by these two states. The Quadripartite Agreement is at <https://www.iaea.org/sites/default/files/infirc435.pdf>.

6. <https://www.iaea.org/sites/default/files/infirc395.pdf>.

7. Article 13 of the Quadripartite Agreement.

diversion of nuclear material to nuclear weapons. The Committee expressed the intention that the scope of “non-application” of safeguards should be circumscribed as far as possible.<sup>8</sup>

### **The scope of verification under paragraph 14**

If paragraph 14 is read too literally it could be interpreted as excluding any form of safeguards. Paragraph 14.(c) says arrangements under this paragraph “shall only relate to the temporal and procedural provisions, reporting arrangements, etc.” However, in interpreting paragraph 14 it is essential to keep in mind its purpose.

It cannot have been the intention of the NPT negotiators to provide a major loophole that would render ineffective the NPT’s prohibition against diversion of nuclear material to nuclear weapons. Rather, the possibility of “non-applying” the safeguards that would otherwise apply is to allow for the practical issues associated with military activities – especially the legitimate need to protect classified information, and also the practicalities of providing inspector access to mobile “facilities” such as naval reactors, and aligning inspection timing with operational schedules.

Some of the key factors in considering how paragraph 14 should be applied are outlined as follows.

- (1) The primary consideration for the IAEA must be to maintain assurance that nuclear material under the control of the state is not diverted to nuclear weapons (one would hope the state shares this concern!). Paragraph 14 requires arrangements for the non-application of safeguards to be agreed between the state and the Agency. While the Agency’s agreement is to be given as promptly as possible, it could not be appropriate for the Agency to agree unless it is satisfied non-application of safeguards will not adversely affect its responsibility to verify the non-diversion of nuclear material to nuclear weapons.
- (2) Paragraph 14 does not necessarily exclude the full application of all the safeguards measures in the agreement. The state could decide to continue standard safeguards on the nuclear material concerned. This would be the optimum outcome. In practice, however, states can be expected to want arrangements that accommodate the particular circumstances of naval fuel.
- (3) Paragraph 14 does not refer to non-application of safeguards in general, but rather, non-application of “the safeguards provided for in the (particular) Agreement”. This does not exclude the application of purpose-designed verification measures agreed by the IAEA and the state and set out in a further, separate, agreement. These would be “safeguards” in the general sense but, to avoid confusion with *the safeguards provided for in the agreement*, in this paper they are referred to as *verification*. Some of the verification activities that might apply are outlined in the paper of 8 October 2021.
- (4) It is open to the state and the IAEA to agree to whatever they consider appropriate. This could include those safeguards measures under the agreement that are suitable for application, supplemented by other measures as necessary, or it could involve entirely new measures specific to the particular circumstances. The Statute authorises the Agency to apply safeguards, at the request of a state, to any of its activities in the field of atomic energy (Article III.A.5). Paragraph 14 does not limit the scope of any such request. As the Secretariat’s 1983 advice noted, it is for the Board to determine the form and extent of particular safeguards. The Board has concluded a variety of safeguards agreements over time, as well as verification activities that differ from standard safeguards.<sup>9</sup>
- (5) Paragraph 14 requires the state to “make it clear” that the nuclear material concerned will not be used for nuclear weapons. How should the state do this? This must require more than a statement, because a statement would be simply reiterating the commitment the

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8. Further details of the Safeguards Committee’s discussions are in the paper of 8 October 2021.

9. Examples include verification and monitoring activities in South Africa, Iraq, DPRK and Iran.

state has under the NPT and its CSA. In considering how the state would meet this requirement, the Agency needs to consider the assurance provided by the safeguards applying either side of the paragraph 14 “envelope”, as well as the verification measures the Agency may wish to have within this envelope. Acquisition path analysis is needed to assess how nuclear material inside the paragraph 14 arrangement could relate to materials and capabilities outside that arrangement, which are addressed by the safeguards agreement. The Agency might conclude not only that certain measures are needed within the paragraph 14 arrangement, but also that safeguards outside the arrangement need to be strengthened.

To give an example: if a state were to remove fuel from a submarine reactor in order to obtain HEU (high enriched uranium), it would need a reprocessing capability to separate the HEU from fission products. Detection of an undeclared reprocessing plant (or large-scale hot cells) is a function of the safeguards agreement, or more particularly the combination a safeguards agreement and an Additional Protocol (AP). The Agency is most likely to conclude that for a state with naval fuel under paragraph 14 arrangements, credible assurance against diversion requires not only certain measures within paragraph 14, but also that the state has in place an AP. The Agency might also want to see the AP supplemented by additional measures focused on proliferation-sensitive materials and technologies.

Why should a state consider doing more than seems to be required by a literal reading of paragraph 14? In furtherance of the NPT, the state and the IAEA have a responsibility to the international community to demonstrate that the NPT prohibition against nuclear weapons is being honoured. If there are major concerns about this – if the IAEA considers it cannot provide credible assurance of the non-diversion of nuclear material by the state – this will undermine the international confidence that the NPT is intended to provide. Such a situation is not in the interest of the state or the Agency, nor is it in the interest of the international community.

## Conclusion

In considering the kind of verification activities desirable for nuclear material in non-proscribed military use, the Agency needs to undertake a realistic risk analysis – some if not most hypothetical diversion scenarios may well be implausible, so pragmatic qualitative verification measures may well suffice in place of the usual measures employed in standard safeguards.<sup>10</sup> If a state insists on the absolute minimum, based on a literal reading of paragraph 14, and if the Agency can show this is inadequate to meet its (the Agency’s) responsibilities, the Board should not agree to an unsatisfactory arrangement.

The Agency also needs to consider the implications of nuclear material in non-proscribed military use for safeguards implementation outside any paragraph 14 arrangements, for example, additional acquisition paths that need to be covered. The Board would have strong grounds to require an Additional Protocol as a prerequisite for any CSA state proposing paragraph 14 arrangements.

The first use of paragraph 14 will be very important for the precedent it sets. It is essential to ensure a careful balance, between the legitimate concern of the state to protect classified information, the international community’s interest to ensure nuclear material is not diverted to nuclear weapons, and the IAEA’s responsibilities in these matters.

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10. See discussion in the paper of 8 October 2021.