

MEMORANDUM

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Subject: States' Obligations Under Additional Protocols to IAEA Comprehensive Safeguards Agreements

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Introduction¹

Article III of the Nuclear Nonproliferation Treaty (NPT) treaty, which entered into force in 1970, requires nonnuclear-weapon states-parties to conclude comprehensive safeguards agreements (CSAs), which are of indefinite duration, with the International Atomic Energy Agency (IAEA).² These agreements are based on a model described in Information Circular 153 (INFCIRC/153), which states that such agreements “should provide for the Agency's right and obligation to ensure that safeguards will be applied” to all nuclear material of potential proliferation concern “in all peaceful nuclear activities within the territory of the State, under its jurisdiction or carried out under its control anywhere, for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices.”³

The scope of a CSA agreement is not limited to nuclear material declared by a state, but includes all nuclear material in all peaceful nuclear activities within that country. This was a change from the pre-NPT version of IAEA safeguards, described in Information Circular 66 (INFCIRC/66), which depended on verifying declared material at specific facilities. Nevertheless, as a practical matter, the IAEA's ability to inspect and monitor nuclear facilities, as well as obtain information, in a particular country pursuant to a CSA is limited to facilities and activities that have been declared by the government. After a CSA enters into force, the government is required to provide the IAEA with lists of all nuclear material in the country and nuclear facilities, along with associated design information. The agency subsequently verifies the correctness and completeness of those declarations using various verification methods.

¹ For more detailed information about Iran's nuclear program, see CRS Report RL34544, *Iran's Nuclear Program: Status*, by Paul K. Kerr. For more information about the July 2015 Joint Comprehensive Plan of Action (JCPOA) concerning Iran's nuclear program, see CRS Report R43333, *Iran Nuclear Agreement*, by Kenneth Katzman and Paul K. Kerr. Unless otherwise noted, all quotations are from Model Protocol Additional to the Agreement(s) Between State(s) and the International Atomic Energy Agency for the Application of Safeguards, International Atomic Energy Agency, INFCIRC/540.

² The NPT defines a nuclear-weapon state as “one which has manufactured and exploded a nuclear weapon or other nuclear explosive device” prior to January 1, 1967. These states are China, France, Russia, the United Kingdom, and the United States.

³ This is to apply to all “source or special fissionable material.” See also Nuclear Regulatory Commission definition of source material: <https://www.nrc.gov/materials/srcmaterial.html>

Additional Protocol

After the 1991 Persian Gulf War, IAEA inspection teams working with the U.N. Special Commission on Iraq (UNSCOM) revealed an extensive covert nuclear weapons program that had been virtually undetected by annual IAEA inspections of Baghdad's declared facilities. This spurred efforts to strengthen the IAEA's access to information and its authority to conduct more intrusive inspections. In 1997, IAEA member states adopted a "Model Additional Protocol" (INFCIRC/540), which states could conclude voluntarily, with the IAEA. To date, 148 countries have signed an Additional Protocol (AP) and 129 have entered into force, including in the United States.

The Additional Protocol increases the IAEA's ability to investigate undeclared nuclear facilities and activities in nonnuclear-weapon states by increasing the agency's authority to inspect certain nuclear-related facilities and to demand information from member states. For example, it requires an adherent to disclose to the IAEA its nuclear fuel cycle research and development activities, all parts of its nuclear fuel cycle (from uranium mines to nuclear waste) as well as the manufacturing and export of nuclear-related equipment and material. It also provides IAEA inspectors with short-notice inspection authority, access to any declared location related to the nuclear fuel cycle, and environmental sample collection at any location.⁴

Information Required under the AP

Article 2 of the Model Additional Protocol requires a state to provide the IAEA with information about a variety of nuclear-related activities that supplements the information provided by a state pursuant to its comprehensive safeguards agreement. This information includes:

- A “general description of and information specifying the location of [government-controlled] nuclear fuel cycle-related research and development activities not involving nuclear material.”⁵ These activities include those “specifically related to any process or system development aspect” of uranium conversion, uranium enrichment, nuclear reactors, nuclear fuel fabrication, and spent fuel reprocessing. The Protocol also requires the state to “make every reasonable effort to provide” the IAEA with a “general description of and information specifying the location of nuclear fuel cycle-related research and development activities” which are not government-controlled and do not involve nuclear material.
- A “description of the scale of operations for each location engaged in the activities specified in Annex I” to the Protocol. This Annex covers a variety of activities related to enrichment, reprocessing, and nuclear reactors.
- A description of the use and contents of each building in the vicinity of facilities with nuclear material declared under a signatory's safeguards agreement.
- Information about “the location, operational status” and production capacity of uranium mines and uranium mills.
- Information, including imports and exports, regarding certain nuclear material that is not covered by the comprehensive safeguards agreement.

⁴ Environmental sampling involves swiping surfaces during verification activities followed by laboratory analysis to detect the presence of undeclared material or activity. See also, <https://www.iaea.org/sites/default/files/safeguardslab.pdf>

⁵ As noted, a state's comprehensive safeguards agreement requires states to declare nuclear material of potential proliferation concern.

- Information regarding the import and export of items listed in Annex II to the Protocol. This Annex covers items related to enrichment, reprocessing, and nuclear reactors.
- “General plans for the succeeding ten-year period relevant to the development of the nuclear fuel cycle” when approved by the government.

Locations and Access

Depending on the type of facility, the IAEA may request access to a location in order to “assure the absence of undeclared nuclear material and activities” in the facility or to “resolve a question relating to the correctness and completeness” of a signatory’s declaration pursuant to Article 2 of the Model Additional Protocol. For sites other than those that the state declares to the IAEA, the Additional Protocol would require the agency to notify the government at least 24 hours before inspecting “[a]ny location specified by the Agency.” For certain inspections of declared nuclear facilities, the IAEA is required to give the government at least two hours’ notice; the agency may provide less notice “in exceptional circumstances.” The methods and activities (e.g., environmental sampling, radiation detection) that IAEA inspectors may undertake when accessing such a location vary depending on the facility’s type. Both the comprehensive safeguards agreement and additional protocol permit the IAEA to access military facilities in order to conduct its safeguards mission.

The Protocol would allow the IAEA access to the following types of nuclear locations:

- Uranium mines, uranium mills, and uranium ore processing facilities located at the mines.
- Buildings around facilities with nuclear material declared under the signatory’s safeguards agreement.
- Locations of nuclear fuel cycle-related research and development activities not involving nuclear material.
- Locations engaged in activities specified in Annex I of the Model Additional Protocol. As noted, these activities include the manufacture of some components related to enrichment, reprocessing, and nuclear reactors.

If a state refuses to grant the IAEA access to certain facilities, the IAEA Director-General can call for a special inspection; the inspection could require approval from the IAEA Board of Governors.⁶ It is worth noting that the Protocol contains provisions for resolving questions about the state’s nuclear program that arise during implementation. For example, Article 2 requires the state to respond to IAEA requests for “amplifications or clarifications of any information it has provided under this Article.”

⁶ For a description of special inspections, see CRS Report R44142, *Iran Nuclear Agreement: Selected Issues for Congress*, by Kenneth Katzman and Paul K. Kerr.