Congressional Research Service

MEMORANDUM May 21, 2012

To: Hon Edward J. Markey
Attention: Michal Freedhoff, Ph. D.

From: Todd Garvey, Legislative Attorney, 7-0174

Subject: **Peaceful Use Restrictions on Uranium Enriched at the Urenco Uranium Enrichment Facility**

This memorandum is provided in response to your request for information relating to potential legal restrictions on enriched uranium produced by the Urenco, USA (Urenco) facility in New Mexico. Specifically, you asked whether the 1992 Washington Agreement[1] and the 1996 Agreement For Cooperation in the Peaceful Uses of Nuclear Energy Between the European Atomic Energy Community and the United States of America (Euratom Agreement)[2] would prohibit enriched uranium produced at that facility from being used in reactors owned by the Tennessee Valley Authority (TVA) to produce tritium for eventual use in the production or maintenance of U.S. nuclear warheads.[3] Given the time constraints on this request, the lack of case law or other legal authority related to this question, the sensitive nature of the agreements, the limited amount of reliable and publicly available information relating to negotiations and discussions between the U.S. and the applicable foreign nations, and the resulting difficulties in reaching any definitive interpretive conclusions, this memorandum is necessarily limited to a textual analysis of the pertinent provisions of the above mentioned international agreements. Moreover, this memorandum is intended as a supplement to a previous memorandum authored by CRS analysts Mark Holt and Mary Beth Nikitin discussing the many policy issues associated with this topic.

It should be noted at the outset that the Department of Energy (DOE) has consistently asserted that only unrestricted, domestic-origin uranium enriched with domestic technology may be used to produce tritium for use with the nuclear stockpile. It is unclear whether the DOE position is one based on what it judges to be legal requirements, policy considerations, or additional unspoken or informal international

[1] Agreement Between the Three Governments of the United Kingdom of Great Britain and Northern Ireland, the Federal Republic of Germany and the Kingdom of the Netherlands and the Government of the United States of America regarding the Establishment, Construction and Operation of a Uranium Enrichment Installation in the United States, entered into force Feb. 1, 1995 [hereinafter "Washington Agreement"], available at: http://www.official-documents.gov.uk/document/cm80/8047/8047.pdf.

[2] Agreement For Cooperation in the Peaceful Uses of Nuclear Energy Between the European Atomic Energy Community and the United States of America, entered into force April 12, 1996 [hereinafter "Euratom Agreement"], available at: http://nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/Euratom _123.pdf.

[3] Tritium gas is used in every U.S. nuclear warhead to enhance its explosive yield. A typical thermonuclear device consists of two stages, a primary where the explosion is initiated, and a secondary where the main thermonuclear explosion takes place. The yield of the primary stage, and its effectiveness in driving the secondary to explode, is increased by tritium gas which undergoes a nuclear fusion reaction with deuterium, and generates a large amount of neutrons to amplify the nuclear burn up of the plutonium or highly enriched uranium.

understandings. Indeed, DOE may have outlined its position on tritium production and determined that the sensitive nature of the analysis requires that it remain confidential. As such, if additional information relating to both the Washington or Euratom Agreements is made available, that information could very well impact this analysis. However, without such documentation, it is difficult for CRS to ascertain the legal substantiality of the DOE position.[4]

The 1992 Washington Agreement

The 1992 Washington Agreement (Agreement), entered into by the United States, Germany, the United Kingdom, and the Netherlands,[5] authorized the construction and operation of the Urenco centrifuge enrichment plant located outside of Eunice, New Mexico.[6] The Agreement established the conditions under which foreign nuclear centrifuge technology would be transferred into the United States in order "to establish, construct and operate" the enrichment facility.[7] In addition, Article III of the Agreement sets forth restrictions on permitted uses of both the facility's enrichment technology and certain material produced by that technology. Article III, in pertinent part, provides:

> Any centrifuge technology, equipment and components transferred into the United States subject to this Agreement, the Installation, any nuclear material and [sic] the Installation, any special nuclear material produced through the use of such technology, any special nuclear material produced through the use of such special nuclear material,…shall only be used for peaceful, non-explosive purposes.[8]

Article III therefore establishes that any technology transferred into the United States for use in the Urenco facility, the facility itself, any special nuclear material created by the facility, and any special nuclear material produced from the special nuclear material created at Urenco (referred to as second generation material), must all be used only for "peaceful, non-explosive purposes."

As a result of this "peaceful purposes" provision, questions have been raised as to whether enriched uranium provided to TVA by the Urenco facility may be used to power reactors which, in turn, create not only electricity, but also tritium for eventual use in nuclear warheads.[9] The nature and scope of the restriction imposed by Article III on "special nuclear material" produced at the Urenco facility, however, is not explicit and is subject to varying interpretations. Article 31 of the Vienna Convention on the Law

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[4] As is discussed below, the executive branch's interpretations of its own international obligations are accorded great weight by reviewing courts. *See*, Sumitomo Shoji America, Inc. v. Avagliano, 457 U.S. 176 (1982). In addition, there does not appear to be any existing legal authority that would compel DOE to alter its position, nor does there appear to be an existing mechanism through which a private, third party could force such an alteration. The Euratom Agreement provides for mediation, conciliation, or arbitration in the case that a dispute arises between the parties. Euratom Agreement, Art. 12. The Washington Agreement provides that the parties "shall consult as necessary on issues regarding interpretation or implementation." Washington Agreement, Art. XII.

[5] The agreement included these three signatories because Urenco was established pursuant to the Treaty of Almelo as an international consortium or joint industrial enterprise overseen by representatives from Germany, the Netherlands, and the United Kingdom. The Washington Agreement was entered into by the United States as an executive agreement, rather than taking the form of a treaty ratified with the advice and consent of the Senate. For additional background on treaties and executive agreements, see CRS Report RL32528, *International Law and Agreements: Their Effect Upon U.S. Law*, by Michael John Garcia.

[6] Washington Agreement, *supra* note 1.

[7] *Id*., at Art. II.

[8] *Id*., at Art. III.

[9] Urenco has signed a contract with TVA to supply enrichment services from its New Mexico plant to the TVA's Watts Bar and Sequoyah reactors. See CRS memorandum provided to your office on May 15, 2012 entitled "Potential sources of nuclear fuel for tritium production," by Mark Holt and Mary Beth Nikitin.

of Treaties, which is generally understood to reflect customary practice with regard to treaty interpretation, states that "[a] treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose."[10] Additionally, the United States Supreme Court has stated that interpretation of a treaty, like interpretation of a statute, "begins with its text."[11] Although the negotiating and drafting history of an agreement may also serve as "aids" to interpretation, there appears to be very little reliable, publicly available information relating to negotiations surrounding the Agreement.[12]

Interpreting the extent to which special nuclear material (SNM) produced at the Urenco facility is subject to the peaceful purposes restrictions of the Washington Agreement depends principally on the relationship between two key clauses of Article III. The first clause, referred to as the first generation production clause, provides that the peaceful purposes restriction applies to "any special nuclear material" produced by the Urenco centrifuge technology transferred into the U.S. under the Agreement.[13] The second clause, referred to as the second generation production clause, supplements the first clause and provides that in addition to SNM produced from the transferred technology, "any special nuclear material produced through the use of such special nuclear material" is also subject to the peaceful purposes restriction.[14] Thus, the first generation clause applies to any SNM produced at the Urenco facility, such as enriched uranium. If that enriched uranium was then used to power a reactor, any other form of SNM that was produced as a result of the operation of that reactor (i.e. plutonium[15]) would be subject to the peaceful purposes restrictions under the second generation clause.

The scope of the Article III restriction can only be determined after interpreting these two clauses together. Notwithstanding the lack of interpretive history, it would seem that the plain text of Article III is subject to at least two interpretations: one broad and one narrow. A broad reading of the clause could appear to support the conclusion that the second generation production clause acts only to clarify that Article III's broad prescription that all SNM produced at the facility be used only for peaceful purposes includes, but is not limited to, any SNM subsequently produced from the uranium enriched at the Urenco facility. To the contrary, a narrow interpretation could lead one to conclude that the second generation production clause was expressly included to act as a limitation on the reach of the peaceful purposes restriction. Under this interpretation, only uranium enriched at Urenco and SNM produced from Urenco's enriched uranium would be subject to the Article III restrictions. Any other non-SNM material produced through the use of Urenco's enriched uranium would not be restricted. These two interpretations are considered in greater detail below.

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[10] Vienna Convention on the Law of Treaties, entered into force Jan. 27, 1980, 1155 U.N.T.S. 331 [hereinafter "Vienna Convention"] at Art. 31. Although the United States has not ratified the Vienna Convention, it recognizes it as generally signifying customary international law. *See, e.g.*, Fujitsu Ltd. V. Federal Exp. Corp., 247 F.3d 423 (2nd Cir. 2001) ("we rely upon the Vienna Convention here as an authoritative guide to the customary international law of treaties…[b]ecause the United States recognizes the Vienna Convention as a codification of customary international law…and [it] acknowledges the Vienna Convention as, in large part, the authoritative guide to current treaty law and practice.") (internal citations omitted).

[11] Medellin v. Texas, 552 U.S. 491, 508 (2008)

[12] *Id*. ("Because a treaty ratified by the United States is 'an agreement among sovereign powers,' we have also considered as 'aids to its interpretation' the negotiation and drafting history of the treaty as well as 'the postratification understanding' of signatory nations.")(citations omitted).

[13] Washington Agreement, Art. III.

[14] *Id*.

[15] Plutonium is a form of SNM that is produced as a result of the irradiation of uranium. Any plutonium that remains following the end of the core's life remains in the fuel rod and is included in the spent nuclear fuel that is currently stored at reactor sites. If properly extracted, however, the plutonium could theoretically be used for weapons purposes.

Under the broad interpretation, the peaceful purposes restriction contained in Article III could apply to any future use of "any special nuclear material" produced by the Urenco facility.[16] By the terms of the Agreement, "special nuclear material" includes enriched uranium.[17] Thus, any uranium enriched at Urenco would be subject to the restriction that it be "used" only for "peaceful, non-explosive purposes."[18] Article III could be interpreted broadly so as to establish that the provision's restrictions on SNM produced at the facility apply no matter how attenuated the eventual non-peaceful use is from Urenco's original enrichment—regardless of whether the original SNM was in a derivative form—so long as the enriched uranium produced by Urenco was eventually "used" for something other than a "peaceful, non-explosive purpose." Following this interpretation, an argument can be made that because the enriched uranium produced at the Urenco facility would be provided to TVA for use in creating tritium,[19] which would then be used in the production or maintenance of nuclear warheads, such a chain of events would violate Article III as portions of the enriched uranium provided by Urenco would ultimately be used for a prohibited purpose—i.e. the creation or maintenance of nuclear weapons.[20] The fact that the tritium does not qualify as SNM would not be relevant under this interpretation, as the enriched uranium that was produced at Urenco, which is clearly covered by the Article III restrictions, was ultimately used, though indirectly, for an impermissible purpose. In short, "special nuclear material" produced by the Urenco facility would be provided to the TVA for what could be characterized as something other than a peaceful, non-explosive use—thus running afoul of the Article III restriction.

This view of Article III may be contested on two grounds. First, such an interpretation would appear to render the second generation production clause of Article III as mere surplusage. This clause specifically extends the peaceful purposes restriction beyond SNM produced by Urenco technology to "any special nuclear material produced through the use of such special nuclear material."[21] Accordingly, this second generation provision states that any special nuclear material produced from Urenco's enriched uranium is expressly made subject to the peaceful purposes restriction. A longstanding interpretive canon provides that legal language "should be construed so that effect is given to all its provisions, so that no part will be inoperative or superfluous, void or insignificant."[22] However, if the peaceful purposes provision of Article III were intended to apply to any future use of SNM—no matter how attenuated the chain of events or whether the material was in a derivative form—it would have been redundant to expressly include second generation production within the Article III restriction as such use would already be covered.

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[16] Washington Agreement, Art III ("[A]ny special nuclear material produced through the use of such [centrifuge] technology…shall only be used for peaceful, non-explosive purposes.").

[17] *Id*. at Art. I (identifying "plutonium, uranium-233, and uranium enriched in the isotopes U-233 or U-235" as examples of "special nuclear material.").

[18] *Id*. at Art. III.

[19] The enriched uranium supplied by Urenco would be used to power a reactor that has specific design characteristic that allow it to produce and collect tritium. Commercial reactors contain burnable absorber rods in the reactor core which control the production and distribution of heat in the core by absorbing excess neutrons that would otherwise produce fission reactions. To produce tritium in the reactor, the normal neutron absorbing material, boron, is replaced by an isotope of lithium. That isotope of lithium is a neutron absorber like boron, but the nuclear reaction it undergoes during the absorption process also produces tritium. Such rods are called tritium producing burnable absorber rods.

[20] One may counter that because the TVA reactors are principally commercial power plants, any provision of enriched uranium would be intended for civilian power purposes and therefore qualify as a "peaceful, non-explosive purpose." However, the language of the Washington Agreement does not suggest that the primary or predominant use of the SNM must have a peaceful purpose, but rather the SNM "shall *only* be used" for a peaceful purpose. Washington Agreement, Art. III (emphasis added).

[21] Washington Agreement, Art. III.

[22] Hibbs v. Winn, 542 U.S. 88, 101 (2004) (relating to statutory interpretation). *See also* Itel Containers Intern. Corp. v. Huddleston, 507 U.S. 60, 66 (1993) (interpreting treaty in manner which would avoid making provision superfluous); Pielage v. McConnell, 516 F.3d 1282, 1288 (11th Cir. 2008) ("[t]reaties, like statutes, should be construed so that no words are treated as being meaningless, redundant, or mere surplusage")(citations omitted).

Second, such an interpretation could lead to what may be considered unintended consequences. For example, taking this broad interpretation to its logical limits, one could argue that Article III may also prevent Urenco from providing enriched uranium to a commercial nuclear reactor, which in turn uses that uranium to create electricity, that is then used to power a defense facility. Such a scenario, could, under this broad interpretation, conceivably be characterized as SNM from the Urenco facility being "used" for a military purpose that did not qualify as "peaceful or non-explosive."[23] It should be noted that Urenco currently provides enriched uranium to commercial nuclear power plants that distribute electrical power to the general grid.

Article III also appears to be subject to a narrower interpretation that could limit the application of the peaceful purposes restriction to only (1)uranium enriched at the Urenco facility and (2)any SNM produced from that enriched uranium. Any non-SNM materials (i.e. tritium) produced as a result of the use of Urenco enriched uranium would be excluded from the peaceful purposes restriction. Thus, the second generation clause would act to restrict the reach of Article III by limiting its coverage of derivative productions to only productions of SNM. Under such an interpretation, the provision would continue to require that all SNM, including enriched uranium, produced at the Urenco facility be used only for peaceful purposes. However, with respect to second generation use of that material, the peaceful purposes restriction would only apply to "any special nuclear material produced through the use of such special nuclear material."[24] Under this interpretation, it could be argued that the Article III language was specifically chosen to prevent the transferred enrichment technology from being directly employed to produce the two forms of "special nuclear material" used for weapons purposes: highly enriched uranium and plutonium. The first generation clause would prevent Urenco from using the centrifuge technology to directly produce highly enriched uranium, while the second generation clause would prevent any plutonium that was produced as a result of the operation of a reactor using Uraneco enriched uranium from being extracted for weapons purposes. Under this interpretation, only second generation SNM (such as plutonium) produced from irradiation of Urenco enriched uranium would be subject to the peaceful purposes restriction.[25] All other nuclear or non-nuclear materials produced from the use of Urenco SNM would therefore be considered outside the scope of the Article III restriction.[26] Article I of the Agreement, which provides definitions for key terms, suggests that tritium (generally considered a "byproduct material")[27] does not qualify as "special nuclear material."[28] As a result, under this narrow interpretation, it would appear that a tenable assertion could be made that tritium produced through the use of the Urenco-provided enriched uranium would not qualify as SNM and, therefore would not be subject to the Article III peaceful purposes limitation.[29]

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[23] This was apparently a concern under the peaceful use provision of the Euratom Agreement. See discussion *infra*.

[24] Washington Agreement, Art. III.

[25] A similar argument was briefly outlined in a communication from Urenco to the National Nuclear Security Administration. Letter from Mary Anne Sullivan, Hogan & Hartson, to Richard Goorevich, Director, NNSA Office of International Regimes and Agreements, May 9, 2008.

[26] Electricity produced from the Urenco SNM would also be excluded and therefore would not be subject to the Article III peaceful purposes restrictions.

[27] Tritium would appear to qualify as a "byproduct material" rather than a "special nuclear material" under the Atomic Energy Act. See 42 U.S.C. § 2014(e).

[28] Washington Agreement, Art. I (identifying "plutonium, uranium-233, and uranium enriched in the isotopes U-233 or U-235" as examples of "special nuclear material."). Tritium would also appear to qualify as a "byproduct material" rather than a "special nuclear material" under the Atomic Energy Act. See 42 U.S.C. § 2014(e).

[29] In comparison to the language in the Washington Agreement, consider, for example, the broader use restriction included in Article 8 of the Agreement for Cooperation Between Australia and the United States of America Concerning Technology for the Separation of Isotopes or Uranium by Laser Excitation. That agreement establishes that "[s]ensitive nuclear facilities and major critical components subject to this Agreement and any material used in them or produced through their use…shall not be used for (continued...)

This interpretation may be contested on the ground that it runs counter to Department of Energy (DOE) policy and practice. DOE's interpretation of the Agreement is significant in that the Supreme Court has recognized that the United States' interpretation of international agreements to which it is a party is "entitled to great weight."[30] Moreover, the Vienna Convention on the Law of Treaties states that "subsequent practice in the application of a treaty" may play a role in treaty interpretation.[31] DOE has repeatedly stated that only U.S.-origin uranium enriched with U.S. domestic technology may be used to power reactors engaged in tritium production. For example, in a 1999 Record of Decision, DOE cited an interagency report discussing the potential use of commercial reactors as a means for producing tritium for the conclusion that "[t]he commercial reactor option would be operated in compliance with international agreements imposing restrictions on use of transferred materials for peaceful purposes only, e.g., no reactor fuel or component transferred under these agreements would be used by any reactor making tritium."[32] More recently, in a background paper associated with the Secretary of Energy's recent decision on re-enrichment of depleted uranium by the United States Enrichment Corporation, DOE stated that "the Department's National Nuclear Security Administration (NNSA) requires U.S.-origin unobligated domestically enriched, domestic-origin uranium to support continued tritium production for the United States' nuclear stockpile. At this time, the Paducah [] facility is the only enrichment facility operating domestically that uses U.S.-origin technology and meets the treaty obligations for the U.S. nuclear deterrent."[33]

The Euratom Agreement

The Euratom Agreement was entered into in 1996 by the United States and the European Atomic Energy Community (Euratom), of which the United Kingdom, Germany, and the Netherlands are member states.[34] However, similar agreements have been in force since 1958. The purpose of the Euratom Agreement (a congressional-executive agreement)[35] was to establish conditions governing transfers of nuclear technology, equipment, and materials between Euratom and the United States so as to encourage the "development and use of nuclear energy for peaceful purposes."[36] The agreement was entered into pursuant to section 123 of the Atomic Energy Act (AEA) which requires that all significant U.S. nuclear cooperation with other countries be conducted pursuant to a peaceful nuclear cooperation agreement.[37] Of specific import to this memorandum, the AEA specifically requires that any agreement include:

> a guaranty by the cooperating party that no nuclear materials and equipment or sensitive nuclear technology to be transferred pursuant to such agreement, and no special nuclear material produced through the use of any nuclear materials and equipment or sensitive nuclear technology transferred

(...continued)

any nuclear explosive device, for research on or development of any nuclear explosive device, or for any military purpose.".

[30] Sumitomo Shoji America, Inc. v. Avagliano, 457 U.S. 176, 184-85 (1982).

[31] Vienna Convention, Art. 31.

[32] Consolidated Record of Decision for Tritium Supply and Recycling, 64 Fed. Reg. 26374 (May 14, 1999).

[33] Background Fact Sheet, Transfer of Depleted Uranium and Subsequent Transactions, May 15, 2012. Available at: http://energy.gov/sites/prod/files/Paducah%20Background%20Factsheet.pdf.

[34] Euratom member states include those members of the European Union.

[35] Congress delegated authority to enter into "123 Agreements" to the President under the Atomic Energy Act subject to specific procedures for congressional disapproval. 42 U.S.C. § 2153.

[36] Euratom Agreement, Preamble.

[37] 42 U.S.C. § 2153.

> pursuant to such agreement, will be used for any nuclear explosive device, or for research on or development of any nuclear explosive device, or for any other military purpose.[38]

The language actually adopted in the Euratom Agreement, however, deviates from the statutory language. Article 7 provides that:

> 1. Cooperation under this Agreement shall be carried out for peaceful purposes.
>
> 2. Non-nuclear material, nuclear material and equipment transferred pursuant to this Agreement and special fissionable material used in or produced through the use of such items shall not be used for any nuclear explosive device or for any military purpose.[39]

It is not clear whether the Euratom Agreement generally, or its peaceful use provision specifically, would apply to the enrichment services provided by Urenco. By its terms, the Euratom Agreement states that any "non-nuclear material, nuclear material and equipment transferred between the Parties or their respective persons or undertakings, whether directly or through a third country, shall become subject to this Agreement upon their entry into the territorial jurisdiction of the receiving Party."[40] In addition, the peaceful use provision of Article 7 applies only to "non-nuclear material, nuclear material, and equipment" transferred under the Agreement, and "special fissionable material" produced from the transferred items.[41] It is our understanding that only centrifuge equipment, and no nuclear or non-nuclear material (as defined by the Euratom Agreement), was transferred into the U.S. for use by the Urenco facility. As such, unless the centrifuge equipment that was transferred into the U.S. falls within the Euratom Agreement's definition of "equipment," the peaceful use provision likely would not apply to either the Urenco facility or the "special fissionable material" produced by the facility. Under Article 21, "equipment" is defined narrowly as "any reactor as a complete unit other than one designed or used primarily for the formation of plutonium or uranium-233 or any other item so designated jointly by the appropriate authorities of the Parties."[42] Accordingly, unless the parties have subsequently "jointly designated" Urenco's centrifuge technology as "equipment" for purposes of the agreement, it appears that a substantial argument may be forwarded that the transferred centrifuges would not be covered by the Euratom Agreement.[43]

The DOE and the NNSA appear to disagree with this interpretation, but CRS was unable to locate a written legal interpretation outlining such a position. Without an available analysis, it is difficult to

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[38] 42 U.S.C. § 2153(a)3.

[39] Euratom Agreement, Art. 7. One of the few substantive comments made in the hearing record on the Euratom Agreement related to dual-use facilities. A State Department official noted that: "there are no provisions in the U.S.-Euratom agreement which prohibit either party from comingling military and civilian nuclear materials. Moreover, there is no need for such a provision." The official then cited to Article 7. S. Hrg. 104-481 at 441, 104th Congress (1996).

[40] *Id*., at Art. 6 "Items Subject to the Agreement."

[41] *Id*., at Art. 7.

[42] *Id*., at Art. 21. In response to a question relating to U.S. export of enrichment equipment posed by Senator John Glenn during Congress's consideration of the Euratom Agreement, a State Department official noted that "[a]ny proposed transfers of enrichment, reprocessing or heavy water production technology would be considered on a case-by-case basis." It is unclear whether this statement was made on a policy or legal basis. S. Hrg. 104-481 at 419, 104th Congress (1996); *see also*, Message from the President of the United States on the Proposed Agreement for Cooperation in Peaceful Uses of Nuclear energy Between United States and European Atomic Energy Community, 141 Cong. Rec. 34807 (Nov. 29, 1995) ("It [the Euratom Agreement] does not provide for transfers under the agreement of any sensitive nuclear technology (SNT).").

[43] The parties have not attached any official addendum to the Euratom Agreement listing additional "jointly designated" equipment. It is possible that additional designations have been classified, or have been agreed to informally. If additional equipment has been included within the scope of the Euratom Agreement, it may affect the Agreement's application.

ascertain the legal substantiality of this interpretation of the Euratom Agreement. However, if additional information becomes available, it may influence this analysis. An NNSA official told CRS that U.S. treaty obligations pursuant to international agreements prevent fuel enriched by Urenco from being used for tritium production, stating that "[t]he answer in general for Urenco is that its enrichment technology has peaceful use restrictions, consistent with section 123(a)(3) of the Atomic Energy Act and our treaty with Euratom, that prevent its deployment in support of nuclear weapons programs or 'for any military purpose.'"[44] As noted previously, the United States' past practice and interpretation of its own international agreement "is entitled to great weight."[45]

Even if the Euratom Agreement applies to the Urenco facility's production of enriched uranium, the Article 7 peaceful use provision is subject to many of the same interpretive difficulties discussed with respect to Article III of the Washington Agreement. The language is relatively ambiguous, and it is difficult to determine how far to extend the peaceful use restriction beyond Urenco's original enrichment. That being said, the use restrictions in the Euratom Agreement appear to be broader than that which is included in the Washington Agreement. For example, Article 7 contains no specific second generation clause, and extends the prohibited uses beyond "peaceful, non explosive purposes " to expressly include "any military purpose."[46] If it were to apply, the potentially broad restrictions of the Euratom Agreement may be significant because, when States are all parties to separate agreements concerning the same subject matter, the later-in-time agreement is typically controlling to the extent that the agreements impose conflicting obligations.[47]

Additionally, the Euratom Agreement includes an Agreed Minute clarifying certain limitations on what constitutes a "peaceful purpose."[48] Under this provision, the Parties agreed that "with reference to Article 7, 'peaceful purposes' includes provision of power for a military base drawn from any power network or production of radioisotopes to be used for medical purposes in a military hospital."[49] This provision may support a broad interpretation of Article7 as it would suggest that the parties believed that any provision of electricity to a military base from a reactor powered by enriched uranium produced at a facility using equipment or materials covered by the treaty may have constituted a violation of Article 7. If provision of electricity produced from covered material would have constituted a violation, it may be inferred that the provision of tritium produced from covered material may also constitute a violation. Were the parties following a more narrow interpretation of Article 7, similar to that discussed with respect to the Washington Agreement, no such addendum would have been required as electricity would not qualify as "special fissionable material" produced from Urenco equipment.[50]

[44] Email message from Dean Tousley, Environmental Protection Specialist, NNSA Office of Fissile Materials Disposition, NA-26, November 4, 2011.

[45] *See*, *supra* notes 24 and 25.

[46] Euratom Agreement, Art. 7.

[47] Vienna Convention, Art. 30 (in general, "[w]hen all the parties to the earlier treaty are parties also to the later treaty … the earlier treaty applies only to the extent that its provisions are compatible with those of the later treaty").

[48] *Id*., at Agreed Minute A.

[49] *Id*.

[50] *Id*. at Art. 21, cl. 6 (defining "special fissionable material").