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REPROCESSING UNDER THE CHINA 123 AGREEMENT

By

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For a number of years, the Government of China has been interested in reprocessing spent nuclear fuel. China has a pilot reprocessing plant with a capacity of roughly 50 tons/year, and it is constructing a demonstration commercial reprocessing plant with a capacity of 200 tons/year. Further, since 2007, the French company, AREVA, has been in serious discussions with the Chinese to build a commercial-scale facility in Gansu that could process about 800-1000 tons/year, producing eight to ten tons of separated plutonium annually. According to the Nuclear Proliferation Assessment Statement for the U.S. agreement for nuclear cooperation with the Chinese government, developing a closed fuel cycle is a "near-term goal for China," and "China plans to reprocess most of its spent fuel domestically." *See* H. Doc. No. 114-28, 114th Cong. 1st Sess. 55, 56 (April 22, 2015). In the circumstances, how should the United States react to news that China was in fact proceeding to reprocess spent fuel from one of four, U.S.-supplied AP 1000 reactors? The answer turns particularly on the terms of the U.S. agreement for nuclear cooperation with the Chinese government. While that agreement does in general provide "advance consent" from the United States to Chinese reprocessing, it nonetheless gives the United States some modicum of control over actual Chinese reprocessing activities.

The Agreement Between the Government of the United States of America and the People's Republic of China Concerning Peaceful Uses of Nuclear Energy (the "China 123 Agreement") governs civil nuclear commerce between the United States and China. *See* House Doc. No. 114-28, 114th Cong., 1st Sess. (April 22, 2015). The China 123 Agreement was signed on April 13, 2015, and it was submitted to Congress on April 22, 2015. After lying before Congress for the requisite statutory review period under Section 123 of the Atomic Energy Act, 42 U.S.C. § 2153, the China 123 Agreement entered into force on October 29, 2015. It has a 30-year term and thus, unless terminated, will remain in force until 2045. *See* China 123 Agreement, Article 14, para. 2. The China 123 Agreement supersedes in all respects the prior, 1985 nuclear cooperation agreement with China, which was terminated on date the new agreement entered into force. It provides, "All the provisions of this Agreement shall apply to material, equipment, components, information and technology which were subject to the 1985 Agreement immediately prior to its termination." China 123 Agreement, Article 14, para. 4.

The China 123 Agreement contains a number of provisions relevant to Chinese reprocessing of "[n]uclear material transferred pursuant to . . . [the] Agreement and nuclear material used in or produced through the use of material or equipment so transferred." *See* China 123 Agreement, Article 6. In Article 6, para. 1, the China 123 Agreement establishes the general rule that there will be no reprocessing of covered material "unless the parties agree." In other words, the China 123 Agreement provides an overarching consent requirement for Chinese reprocessing of covered material. Thereafter, in Article 6, para. 2, the United States exercises the consent right provided for in Article 6, para. 1, for the term of the agreement. However, the advance consent given is subject to several important limitations also spelled out in the same paragraph. First, before the consent comes into effect, the parties "must agree on arrangements and procedures under which such reprocessing . . . shall take place." Second, reprocessing can only take place in facilities to which International Atomic Energy

Agency ("IAEA") safeguards are applied. Third, if such facilities do not exist, and if the parties agree in writing, reprocessing may take place at facilities "eligible for IAEA safeguards" in accordance with China's 1988 agreement with the IAEA on the application of safeguards (IAEA INFCIRC/369). Fourth, relevant "arrangements and procedures" must include physical protection standards, storage standards and environmental standards consistent with other provisions of the China 123 Agreement. Fifth, separated nuclear material "may only be utilized at facilities to which the appropriate competent authorities of the Parties agree in writing."

Beyond Article 6, para. 2, certain other provisions of the China 123 Agreement are relevant to assessing the scope of U.S. control or influence over Chinese reprocessing. Thus, Article 7 specifies that "[a]dequate physical protection" must be maintained, consistent with and at least equivalent to the IAEA recommendations in IAEA INFCIRC/225 Rev. 5. Article 7, para. 4, further requires that the parties keep each other informed "in the event of unauthorized use or handling of nuclear material" covered by the agreement. In turn, Article 8 prohibits any explosive or military application of covered material. At the same time, Article 9, para. 1, requires that covered material in China "shall be subject" to the China-IAEA safeguards agreement of September 20, 1988, as well as the March 28, 2002, Additional Protocol to such agreement. If that agreement "is not being implemented," then Article 9, para. 3, requires the parties to establish "a mutually acceptable alternative."

Additionally, the China 123 Agreement contains a dispute resolution article (Article 12) which could come into play if the parties were in disagreement about application of any of the provisions discussed above. Article 12 calls for prompt consultations if concerns are raised about non-compliance. Importantly, it affirms that, should disputes arise, the parties "shall have the right to temporarily suspend or to cease further cooperation under the Agreement."

Finally, outside the text of the China 123 Agreement, there is an "Agreed Minute" which is declared to be "an integral part of the Agreement." It provides that, in the case of non-implementation of IAEA safeguards, the parties shall have the right to (1) review "in a timely fashion" equipment design; (2) to require "maintenance and production of records and of relevant reports;" and (3) to designate personnel to have "access to places and data necessary to account for" nuclear material, with an ability to inspect facilities, "install essential devices" and "make such independent measurements as may be deemed necessary to account for . . . nuclear material." The Agreed Minute, it should be noted, also applies to tritium production (which is subject to the peaceful use restrictions of Article 8), requiring annual reporting on its disposition to ensure that such disposition is consistent with Article 8.

Chinese reprocessing might, of course, have been subject to stricter oversight and control by the United States. In 2016, Senators Markey (D-MA) and Rubio (R-FL) introduced legislation which would have sharply enhanced the U.S. position if IAEA safeguards were not being applied. *See* S. 3010, 114th Cong., 2d Sess. (May 26, 2016). Section 9 of this bill would have prohibited the President from agreeing to any reprocessing at a facility to which IAEA safeguards were not being applied without certifying that a number of stringent conditions were being met, including, but not limited to, satisfaction of a "timely detection" standard for any diversion for military purposes, and meeting detailed reporting requirements. The Markey-Rubio bill, however, was not adopted by the Congress.

Even without the Markey-Rubio "fix", it is apparent that the United States is not without significant leverage under the China 123 Agreement. As noted above, despite the United States giving its advance consent to reprocessing, a series of agreements from the United States is required before

China can proceed to reprocess covered material; physical protection must be provided; storage must be satisfactory; environmental standards must be met; military and explosive use must not occur; and safeguards must be applied. Article 9, para. 3, even contemplates that, if IAEA safeguards are not being implemented, a "mutually acceptable alternative" must be established, and the Agreed Minute gives the United States substantial power to ensure that the alternative is adequate. If there is a dispute, while consultation is required, suspension of cooperation is an option.

This is not to say that there are not ambiguities. For example, while application of China's safeguards agreement with the IAEA is central to the China 123 Agreement, China has the right under such agreement to remove facilities from safeguards and to veto inspectors. If it delisted its reprocessing facility, and decided to use the separated material for military purposes, at least as far as the IAEA is concerned China would still technically be in compliance with its obligations to the international agency. It might argue in this circumstance that its agreement with the IAEA is still being "implemented" and alternative safeguards arrangements, as contemplated by Article 9, para. 3, and the Agreed Minute, are not required. In response to efforts to establish such alternatives, it could also resist U.S. entreaties by claiming that such alternatives would "hamper, delay or [cause] undue interference" with China's nuclear program, in contravention of Article 9, para. 4, of the China 123 Agreement. While the arguments in support of this stance are a significant stretch, whether the China 123 Agreement would be sufficient to protect the United States' non-proliferation interests and provide the necessary latitude to challenge China's reprocessing activities remains to be seen.