



## Heavy Water Loophole in Iran Deal

### A priority is ending Iran's overproduction and sale of heavy water

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Iran should no longer be facilitated in its overproduction of nuclear-related heavy water. This overproduction is a violation of the Iran nuclear deal. Heavy water is controlled because of its link to Iran's plutonium pathway to nuclear weapons, and Iran has twice exceeded the limit of how much it can produce since the deal started in January 2016. The last violation occurred in November, despite Iran receiving a warning from the international inspectors charged with monitoring the nuclear deal.

Sound enforcement of the Iran deal should have mandated that Iran blend down any excess heavy water to normal water or stop producing more. If it does not stop production, blending down heavy water is easy and safe, given that the material is non-radioactive and naturally present in tiny concentrations in water. Instead, Iran recently announced that it had shipped 11 more metric tons of heavy water to Oman for storage while it awaits a buyer and produces additional heavy water. This followed the shipment to Oman and subsequent sale of 70 metric tons of excess heavy water to the United States and Russia--heavy water that should have been blended down rather than sold internationally. Instead of focusing on adequately enforcing the Iran deal, the United States has sought to rectify Iran's violations and legitimize its international standing as a commercial supplier.

The shipments of heavy water to Oman represent a loophole in the Iran nuclear deal that the Trump administration should end. In the interim, Oman would do the world a favor by ending its willingness to accept Iranian heavy water and sending any back to Iran for downblending. The return of the heavy water and its blending down would dramatically signal to Iran that violations of the Iran deal are no longer going to be tolerated, or worse, facilitated.

Iran's possession of heavy water is capped at 130 metric tons under the Iran deal but Iran insists on producing more, resulting in the two violations this year. Although the excess above the cap has been relatively small, the UN nuclear watchdog, the International Atomic Energy Agency (IAEA), showed that the second violation involved Iran deliberately exceeding the cap even after the IAEA notified Iran it had reached the 130 metric ton limit. This deliberate

flaunting of the cap raises questions about Iran's commitment to the Iran deal and leaves the United States vulnerable to Iran exploiting other parts of it.

That Iran can send the heavy water to Oman is a flaw in the Iran deal's implementation. The executive body of the Iran deal, the Joint Commission, sculpted a work around of the heavy water cap. Iran did not want to either stop production of heavy water or blend down its excess, and finding international buyers at the time was not possible. Instead of saying no to Iran's desire to have its cake and eat it too, the United States endorsed a major concession. The Joint Commission ruled in secret during late 2015 or early 2016 to allow Iran to park heavy water in excess of the limit in Oman while Iran sought buyers, which ultimately turned out to be the United States and Russia, two countries that did not need the heavy water. The details of this decision, like many others of the Joint Commission, are not public. But the contents of the decision have inevitably emerged, some out of necessity as the heavy water in Oman was sold, particularly to the U.S. Department of Energy (DOE), and some following investigations by [the Wall Street Journal](#) and [our Institute](#). Other details emerged out of Iranian bravado about getting such a good arrangement, something it wanted to advertise to help it sell its heavy water.

Other than getting the heavy water out of Oman and subsidizing and legitimizing Iran's nuclear program, the United States purchase of Iran's heavy water makes no sense economically. The United States faced no imminent shortage of heavy water. Canada, North America's main supplier, was ready and able to provide heavy water.

When the DOE purchase of Iranian heavy water emerged publicly last spring, the DOE and then the State Department issued [misleading statements](#) about why the United States bought the heavy water. They said that DOE had to buy Iranian heavy water for one of its facilities at Oak Ridge, Tennessee because the normal expected supply from Canada had been disrupted. What they did not state is that it was the United States that disrupted the existing Canadian supply by cancelling the procurement process won fairly by a Canadian company. This company had in good faith won a procurement process started in 2014 by DOE's Oak Ridge facility. This process was terminated suddenly by Oak Ridge in January 2016 when the DOE decided to buy the Iranian heavy water.

Although a DOE official apologized to the Canadian company, it received no public acknowledgement of its sacrifice for a supposedly broader good or any compensation for the lost business with the Oak Ridge facility. To make matters worse, the DOE purchase damaged the prospects for a reliable North American heavy water supply chain that the company is developing. DOE needed only six metric tons for Oak Ridge out of its total purchase of 32 metric tons. The rest, or 26 metric tons, DOE announced was to be sold on the commercial market, perhaps at below market value. The sudden appearance of this heavy water disrupted needed investment in a reliable long term production capability of heavy water for both the U.S. government and private industry. While the North American supply of heavy water is plentiful today, the medium and long term prospects are bleak since there has not been significant heavy water production in North America for well over a decade. The existing North

American stockpile is shrinking and supplies from India, the other major supplier, are needed for India's own domestic requirements. As a result, investment is needed for new production capability in North America, which could even be located in the United States. The DOE purchase and sale of Iranian heavy water has threatened the prospects of avoiding a shortage in the future.

Instead of further disrupting the North American market and subsidizing Iran, the DOE should work to minimize the damage of this purchase. One useful mitigating step is for the DOE to place any remaining heavy water of the original 32 metric tons into a strategic reserve. This strategic reserve would act as a key "last resort" supply, reducing the chances of a shortfall in the future and limiting the DOE's disruption of the private market. Such an act would reduce the damage done by DOE's purchase of Iranian heavy water.

U.S. officials told one of us and Congressional staff that the DOE would be very unlikely to buy any more heavy water from Iran. However, according to a person briefed by the administration, the Obama administration may be willing to grant special licenses under the Iran deal to US companies so that they can buy heavy water directly from Iran. The Trump administration should announce now that it will not buy any more heavy water from Iran or grant any licenses under the Iran deal for U.S. private companies to buy any.

The U.S. purchase and subsequent actions turned the Obama administration into a promoter and legitimizer of Iran's heavy water sales. The administration should call this sale what it is – a sweetener for Iran. The arrangement has only encouraged Iran to overproduce heavy water for sale and seek legitimacy as a nuclear supplier.

But Iran is not a legitimate nuclear supplier and does not abide by international rules. It does not have an export control system meeting international standards, and under the Iran deal, it has only committed that it "intends" to create such a system for nuclear materials, equipment, and technology. More concerning, Iranian officials continually boast of Iran's prowess at violating other countries' export control laws to obtain banned goods for its nuclear, missile, and military programs. For example, its recent increased heavy water production rate was likely achieved by importing goods in violation of sanctions and export control laws. Some of these goods were seized by South Korea in 2010. Analysis by experts in another government showed that the quantity seized implied that Iran intended to double the size of its heavy water plant, a goal Iran subsequently achieved, indicating that Iran's illicit procurements for this plant continued after 2010. This example is just one of many that show that Iran is a serial criminal state undeserving of any stamp of legitimacy from the United States. The new administration as a matter of policy should discourage any Iranian heavy water sales and re-establish vigorous investigations and prosecutions aimed at thwarting Iran's repeated violations of U.S. and other countries' export control laws.

President elect Donald Trump has signaled that he is committed to strengthening or renegotiating the Iran nuclear deal. However, that will take time. The new administration needs to act quickly to rectify a glaring weakness created by the parties to the deal that

facilitates on-going Iranian violations via sending heavy water to Oman for eventual sale. It should end the Oman loophole and undo damage wrought by this loophole at home. Quick action would also send an early signal that the new administration intends to rigorously enforce the nuclear deal.