US DOE Created Secret Tennessee Facility to Estimate Iranian Nuclear Breakout

Y-12 National Security Complex Oak Ridge Tennessee. Source: National Nuclear Security Admin - Reuters.

Business Insider published an assessment of a *New York Times (NYT)* report on the US Department of Energy building a secret test facility in Tennessee to test out the ability of Iran's nuclear program to achieve nuclear breakout from their uranium enrichment program, The *NYT* report, Atomic Labs Across the U.S. Race to Stop Iran authored by David Sanger and William Broad, known for leaking Administration information, noted:

> There inside a gleaming plant at the Oak Ridge nuclear reservation were giant centrifuges – some surrendered more than a decade ago by Libya, others built since – that helped the scientists come up with what they told President Obama were the "best reasonable" estimates of Iran's real-life ability to race for a weapon under different scenarios.
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> "We know a lot more about Iranian centrifuges than we would otherwise," said a senior nuclear specialist familiar with the forested site and its covert operations.
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> The classified replica is but one part of an extensive crash program within the nation's nine atomic laboratories – Oak Ridge, Los Alamos and Livermore among them – to block Iran's nuclear progress. As the next round of talks begins on Wednesday in Vienna, the secretive effort remains a technological obsession for thousands of lab

> employees living the Manhattan Project in reverse. Instead of building a bomb, as their predecessors did in a race to end World War II, they are trying to stop one.

This *Business Insider* article demonstrates how the Department of Energy had used nuclear enrichment equipment surrendered by Gaddafi's Libya in 2004 to replicate the enrichment cascade hall at Natanz in Iran in an attempt to estimate the time to breakout. The fact that the New York Times disclosures underestimated what third party experts like David Albright's Washington-DC – based Institute for Science and International Security (the good ISIS) and others had determined was the technical assessment that Iran's actual breakout time was less than three months is an indication of the incredible cupidity of the Administration that Iran couldn't obtain a nuclear device in less than one year a decade from conclusion of an agreement. The obvious move by Congress is hold hearings on this disclosure with qualified third party experts. The other implication is that Israeli PM Netanyahu may have had independent verification that the quantity of low enriched uranium could easily be converted into fissile material for a nuclear weapon, hence his argument that the Administration's negotiation stance using the Department of Energy simulations would lead to what he deemed a 'very bad deal" in the P5+1 negotiations with Iran.

Note these excerpts

> This "Manhattan Project in reverse" is situated on the grounds of the Oak Ridge National Laboratory. It uses placeholder centrifuges meant to represent Iranian equipment – an assembly that including centrifuges once belonging to Libya's disbanded nuclear program.
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> Scientists apparently proposed redesigns, centrifuge cascade configurations, limits on types of centrifuges, and other fixes that they believed would keep Iranian breakout at under a year. Eventually, they reached an

equation that the Iranians could accept.

The Obama administration has premised its arguments for a nuclear deal with Iran on the claim that for a period of 10 years, limits imposed on the Islamic Republic would make it nearly impossible for the country to build a single nuclear weapon in less than a year without the international community learning about it and formulating a response.

The Times doesn't go into much detail as to what those fixes actually consist of, but reports that government scientists reached a high level of confidence that their formula could keep Iran at a one-year breakout.

For instance: "The question was whether a proposed design of Natanz [Iran's only uranium enrichment facility for the first 15 years of an envisioned nuclear deal] that allowed more than 6,000 centrifuges to spin would still accomplish the administration's goal of keeping Iran at least a year away from acquiring enough enriched uranium to make a bomb," the Times article states. "The answer was yes."

But experts are skeptical:

In a report issued on April 11th and authored by a group of scientists that included physicist and former International Atomic Energy Agency expert David Albright, the Institute for Science and International Security noticed a curious aspect to the administration's breakout estimates: they didn't seem to take into account Iran's supply of 20% enriched uranium, fissile material has undergone around 90% of the revolutions needed to reach weapons-grade.

Iran oxidized half of its 20% stock (and down-blended the other half to a lower level of enrichment) under the

November 2013 Joint Plan of Action signed between Iran and a group of 6 countries led by the US.

As the ISIS report explains, in leaving the oxidized 20% stocks out of its breakout estimate, the administration seems to believe that reconverting that 20% to a state where it can be further enriched and weaponized would be such a time-consuming, intensive, and obvious process that Iran's 20% stocks simple don't need to be factored into weaponization scenarios.

The ISIS report is skeptical. It says Iran could render its 20% stocks usable in just a few months and that it's hugely relevant to any breakout scenario.

"The near 20 percent LEU stock, unless largely eliminated or rendered unusable in a breakout, could be an important reserve in reducing the time to produce the first significant quantity of weapon-grade uranium (WGU) and rapidly producing a second significant quantity of WGU," the report states.

According the series of fact sheets released after the Lausanne, Switzerland nuclear talks concluded, Iran would be allowed to keep a stockpile of 300 kilograms of uranium enriched to 3.67% under a final deal. Even a small amount of uranium at 20% enrichment would far surpass this stockpile in weaponization potential: "a rule of thumb is that 50 kilograms of near 20 percent LEU hexafluoride (or about 33 kilograms uranium mass) is equivalent in terms of shortening breakout time to 500 kilograms of 3.5 percent LEU hexafluoride," the report says.

And Iran has plenty of convertible 20% on hand – around 228 kilograms of uranium mass of near-20%, which would come out to 337 kilograms of near-20% if it were "converted back to hexaflouride form."

Much of the 20% is "in forms where the LEU could

> be recovered in a straightforward manner." But the report found no proof that the 20% had been included in the administration's breakout estimate, and concluded that "the US evaluation requires greater scrutiny."

Bloomberg confirms the ISIS report findings:

> As Bloomberg reported on April 21, the administration only declassified its actual breakout estimate – which states that Iran is currently between 2 and 3 months away from building a single nuclear weapon, if it chose to do so – on April 1st, the day before the series of announcements that marked the conclusion of the Lausanne, Switzerland round of nuclear negotiations. Ali Khadery, a former advisor to US Central Command and the US official who spent the longest time in Iraq during the American military campaign in that country, suggested on Twitter that an approximate 2-3 month breakout estimate dated from as early as 2009.

Business Insider conclusion:

> The New York Times article gives an idea of the scientific infrastructure the US is using to evaluate its breakout claims. It's now known that there are scientists using a mock-up of Iranian nuclear facilities to produce conditions for reaching a one-year breakout time.
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> The methods they're actually using for reaching those conclusions, and the relationship between the administration's public breakout claims and Iran's actual timetable under a final deal, both remain as vague as ever.