

What Did Israel Bomb in the Syrian Desert in 2007?

Israel last month admitted that it was responsible for bombing a building in Syria in 2007 that it says was a nuclear reactor under construction but there are strong doubts about what the building was for, argues Ted Snider.

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In September 2007, in the dark of night, warplanes crossed the Syrian border and bombed a covert nuclear reactor. Recently, [Israel took responsibility](#) for the bombing mission that obliterated the Syrian reactor.

The Israeli announcement was unnecessary if it was intended to be an admission of responsibility. The origin of the bombers had never been a mystery. As early as 2008, Seymour Hersh began his report on the bombing with the line “Sometime after midnight on September 6, 2007, at least four low-flying Israeli Air Force fighters crossed into Syrian airspace and carried out a secret bombing mission.” Even the International Atomic Energy Agency’s (IAEA) report on the bombing said that the building had been “destroyed by Israel in September 2007.”

That the nuclear reactor was bombed by Israeli planes is clear. That the building the Israeli planes bombed was a nuclear reactor is far less clear.

The Nontechnical Questions

If Syria was building a nuclear weapons program, they were doing it entirely without the knowledge of the CIA. CIA Director Michael Hayden told President Bush that the CIA knew nothing about the Syrian reactor. That the CIA missed a secret nuclear program is not impossible to believe or even entirely unprecedented. What is more unbelievable is that they missed it when it was right out in the open. The Syrians made no attempt to conceal their biggest secret. The highly sophisticated U.S. satellites missed what a commercial satellite easily picked up.



It is hard to make sense of that. In fact, it is hard to make sense of a lot of nontechnical features of the Israeli story. Even to the layman with no technical knowledge of enrichment or nuclear reactors, a number of features made no sense. Investigative journalist Seymour Hersh picked up on these nontechnical anomalies in his early investigative reporting of the strike, "A Strike in the Dark." A former State Department intelligence expert told Hersh that many of the features that one would see around a nuclear reactor were missing from the site. There was not even any security around it. Former senior IAEA inspector Robert Kelley (image on the right) expanded on this anomaly in a personal correspondence. He said there was "no security whatever: no fences, no guards, no perimeter road, no security on the river pump house, water lines run under a public highway." A nearby agricultural desert water station pump house had more security, he told me. He called the lack of security "a pretty big deal." [So](#) did Syria's then ambassador to the United States, Imad Moustapha:

"An allegedly strategic site in Syria without a single military checkpoint around it, without barbed wire around it, without anti-aircraft missiles around it, without any sort of security surrounding it, thrown in the middle of the desert without electricity, plans to generate electricity for it, with out major supply plans around it? And yet, it is supposed to be a strategic installation? And people don't even think of it. Yesterday, in the White House presidential statement, it was stated to the letter that that was a secret location. And yet, every commercial satellite service available on earth was able to provide photos and images of this so-called secret Syrian site for the past five, six years."

There were other details that didn't fit the Israeli narrative either. The nuclear reactor was supposed to be based on a North Korean design, and North Korea was cast as a key player in the construction of the clandestine nuclear reactor. A North Korean ship called the *Al Hamed* attracted a lot of the spotlight. It was claimed to have brought the Syrians nuclear equipment from North Korea. But, the problem was that, in his investigation, Hersh found that neither maritime intelligence nor the ship's transponder gave any indication that the *Al Hamad* had recently docked in North Korea.

At least two people I spoke to were also struck by the absence of people and the lack of activity at the site. You need a program, one person told me. You need bureaucratic support. Building a nuclear reactor is a huge project. Kelley says

"there were very few workers as in there are no buses and just a few motorcycles. That is a pretty big clue this is not a big deal. About to start up a super critical facility? No workers?"

Pursuing a different line of nontechnical questioning, one person I spoke to asked why, when war broke out in Syria, and America threw everything bad it had at Assad and Syria, from chemical weapons to barrel bombs, why did it never return to the illegal nuclear weapons program if it had real evidence that it had had one?

But, perhaps the most telling thing is not that the CIA missed what was out in the open for commercial satellites to pick up, not that they didn't "have any proof of a reactor - no signals intelligence, no human intelligence, no satellite intelligence," as a former senior US intelligence official who had access to the current intelligence told Hersh. What is, perhaps, more telling is that when they were provided with the intelligence, despite signing on to the

Israeli narrative, they actually [assessed](#) only “low confidence” that the targeted site was part of a Syrian nuclear weapons program. And they weren’t the only ones. Mohamed ElBaradei, then director-general of the IAEA, said that their “experts who have carefully analyzed the satellite imagery say it is unlikely that this building was a nuclear facility.”

The IAEA Verdict

Despite the inconsistencies and the low confidence, by May 2011, the IAEA had rendered a verdict, repeated in their September 2014 report, that

“based on all the information available to the Agency and its technical evaluation of that information, it was very likely that the building destroyed at the Dair Alzour site was a nuclear reactor which should have been declared to the Agency.”

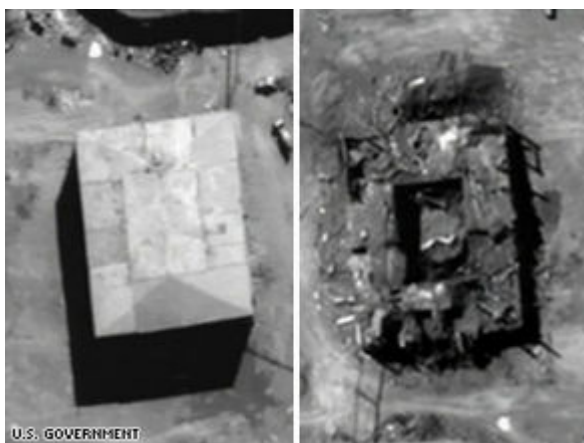
The Background section of the report informs that the information they had been provided with alleges that the bombed building was “a nuclear reactor that was not yet operational and into which no nuclear material had been introduced.”

But if the IAEA verdict is correct, why did Israel cross into Syrian air space and bomb the building in what was almost certainly an act of war? Joseph Cirincione, president of Ploughshares Fund and a leading expert on nuclear weapons, told me that he has no reason to doubt the IAEA’s verdict. But, he said, their verdict was only that it was “an unfueled nuclear reactor under construction,” and that, he said, is “only an initial step” “towards Syria developing a nuclear weapons capability.” Cirincione told me that “there was no imminent risk; no justification of an illegal Israeli attack” because Syria was still “a very long way from assembling the technical, industrial and financial capabilities needed to support a nuclear weapons program.” He said that, at this point in Syria’s development of a nuclear weapons program, the “matter should have been brought to the United Nations, not the Israeli Defense Force.”

The Technical Questions

But there were also reasons to doubt the IAEA’s verdict. More problematic for the Israeli-American-IAEA story than the nontechnical questions were a host of technical questions. There were three topics of technical questions.

The Photographs



Satellite photos of the supposed Syrian nuclear site before and after the Israeli airstrike.

The first was the photographs provided by Israel's Mossad. There were two problems with the photographic evidence. The first was that Hayden never asked the Israelis how they got the photographs even though the CIA Director knew that at least one of the photographs had been photo-shopped to make the case more convincing, as investigative journalist Gareth Porter [reports](#). The second was that the CIA was provided a bunch of photographs from inside a potential nuclear reactor and a bunch of photographs of the outside of the targeted building in Syria, but "nothing that links the two," as former U.N. weapons inspector Scott Ritter has [pointed out](#). The former were potentially of a nuclear reactor, but were the latter?

The Bombed Building

The second set of technical problems involves the building itself. The first is that the building is the wrong size. The weight of the claim that the Syrian building was a nuclear reactor rests on the Israeli-CIA insistence that the building looks like the North Korean reactor at Yongbyon upon which they claim it was modeled. It is a type of reactor known as a gas-cooled graphite-moderated (GCGM) reactor. If it looks enough like that nuclear reactor, it could be a nuclear reactor; if it doesn't, it wasn't. But it doesn't: the Syrian building didn't fit the blueprint. Hersh pointed out this crucial inconsistency early. He says that nonproliferation expert Jeffrey Lewis told him that "even if the width and the length of the building were similar to the Korean site, its height was simply not sufficient to contain a Yongbyon-size reactor."

Gareth Porter's later investigation confirmed the contradiction. Porter relied on Yousry Abushady, the top IAEA specialist on North Korean reactors. Abushady knew GCGM reactors better than anyone at the IAEA, and "the evidence he saw in the video convinced him," Porter reports, "that no such reactor could have been under construction" in Syria. And the first reason, again, according to Abushady was "that the building was too short to hold a reactor like the one in Yongbyon, North Korea." According to Abushady the building bombed in Syria was only "a little more than a third as tall" as the supposed North Korean archetype.

But there were other problems. The North Korean reactor required at least twenty supporting buildings, but the Syrian site had few or none even though Israeli intelligence insisted that it was only a few months from being ready to operate. The reactor was supposed to be a gas-cooled reactor, but there was nothing in place to cool the gas: there was no cooling tower. Porter reports that Robert Kelley also pointed to a lack of facility for treating the water in the imaging. That means the water arriving in the reactor would be full of "debris and silt." Kelley has said elsewhere that "the IAEA's analysis of the water lines that purportedly would in the future have supplied cooling water to the bombed building ignored a number of relevant features." Kelley told me there was no support for fuel fabrication or reprocessing. There was also no building for a spent fuel pond. But, Abushady says that every GCGM reactor ever built has a separate building to house the spent fuel pond. Building after building is missing from the imaging, but the nuclear reactor was supposed to be on the verge of going operational.

The Environment

But the most serious problem is the third: the environmental inconsistencies: there were three damning environmental inconsistencies: the first had to do with barite, the second with uranium and the third with graphite.

The IAEA says that Syria purchased “large quantities” of barite, which can be used, amongst other uses, to “improve radiation shielding properties of concrete.” Since the IAEA did not believe that Syria sought the barite for use in rooms in hospitals that use radiation, it said that it “cannot exclude the possibility” that the barite was intended for use in the nuclear reactor. But Ritter says that the imagery of the site makes it clear that the “shield” would already have been in place. That means that the barite would already be there. In fact, he says, nearly 2,000 tons of it would be there. So, when the building was bombed, barite would have been scattered all over the site. But sensitive environmental sampling revealed none. Robert Kelley [says](#) that “none of the concrete samples analyzed . . . contain any barite”: a fact that he [says](#) that the IAEA analysis conveniently “failed to report”. Ritter concludes that “The lack of Barite, especially when logic dictates its presence if the [Syrian] facility was in fact nuclear related, is a strong indicator that there was no nuclear function, especially that associated with the operation of a nuclear reactor. . . .”

The second crucial ingredient missing was uranium. If the bombed Syrian building was a nuclear reactor, there should have been uranium in the environmental samples the IAEA took. But there wasn't. Mohamed ElBaradei said that “so far, we have found no indication of any nuclear material.” Every sample that was actually taken from the ground in the area of the Syrian building tested negative for uranium and plutonium.

Gareth Porter says that

“Tariq Rauf who headed the IAEA's Verification and Security Policy Coordination Office until 2011, has [pointed out](#) that one of the IAEA protocols applicable to these environmental samples is that “the results from all three or four labs to have analyzed the sample must match to give a positive or negative finding on the presence and isotopics of uranium and/or plutonium.”

And they did: they all gave a negative finding. There was no uranium at the Syrian site.

Strangely, though, Porter reports, uranium was found in an additional sample that was taken in violation of IAEA protocol. That anomalous result was used as evidence that a nuclear reactor had sat on that land. But, that sample was problematic. Why did it disagree with the protocol compliant samples the IAEA had taken?

Every sample taken from the ground around the bombed building had tested negative for uranium. But, the positive sample wasn't taken from the ground around the building. It was taken from a “toilet” or, according to David Albright of the Institute for Science and International Security, from “a changing room in a building associated with the reactor.” But why did the sample from inside the changeroom analyze positive for uranium?

The Syrians say the uranium came from the bombs the Israelis dropped on the site. The IAEA has rejected this explanation as having a low probability. But, Ritter says that the penetration bombs likely used by Israel could well have had uranium in them. He says that bombs dropped by the US in Kosovo led to the detection of uranium. Kelley agrees. He says that the IAEA assumed that the uranium in the bombs would have to be depleted uranium, and, since the uranium they found was not depleted, they said the uranium they found

could not have been introduced by Israeli bombs.

“But,” [Kelley has argued](#), “that assumption and the conclusion that followed it are incorrect. They fail to take account of the fact that natural uranium, of which Israel has an abundance based on what is known about its nuclear program, can be used as a strong nose in an earth-penetrating bomb (of the kind that was used at Dair Alzour) with precisely the same effectiveness as depleted uranium.”

Kelley goes on to say that the uranium that would be detected from such earth-penetrating bombs “would be similar to those found” in Syria. Kelley told me that the scientific reasoning the IAEA used was “kindergarten nonsense.” Intriguingly, Ritter says that “through its admitted morphology studies” on the uranium collected, the IAEA could answer questions about the source of the uranium. He says that

“The fact that the IAEA is withholding the specific properties of the anthropogenic nuclear particles . . . suggests that this issue is being used more for political purposes than scientific.”

Kelley, who was still with the IAEA at this time, told me that the IAEA handling of the uranium question was “embarrassing.” Stories had surfaced that there may have been traces of uranium found in Lebanon from Israeli earth-penetrating bombs.

When “Israel began dropping earth penetrators in Gaza,” Kelley says he “went to IAEA management and suggested we get samples.”

But, he told me that the IAEA refused.

“So an opportunity to compare samples from three sites, Lebanon, [Syria] and Gaza passed.”

And with it passed the opportunity to resolve the Syrian claim that uranium could have been left by Israeli bombs.

Ritter also says the uranium could have been “brought in by the IAEA inspectors, . . . suggesting the presence . . . of cross-contaminated equipment.” That might explain why uranium was found only inside the one site and not outside on the ground all around. And, that, Robert Kelley says, is exactly what probably happened.

In a comment he made on a previous article of mine, Kelley said

“the IAEA samples were almost certainly cross-contaminated.”

He told Gareth Porter a lot more. Kelley told Porter that a “very likely explanation” is that the uranium found in the change room was the result of “cross contamination” from the IAEA inspector’s clothing. According to Kelley, the Syrian case would not be exceptional: this type of cross contamination had occurred a number of times before, including in Iraq.

But the barite and the uranium were not even the biggest problem. The biggest environmental inconsistency came not from testing for barite or uranium but for graphite. After all, the Syrian site was supposed to be a gas-cooled graphite-moderated reactor. If it was, then when the building exploded, it should have sent graphite everywhere, according to former UN weapons inspector Scott Ritter. Ritter says there would have been thousands of pounds of graphite in the facility already. But, he says,

“there’s no evidence in the destruction. . . . If it had been bombed and there was graphite introduced, you would have a signature all over the area of destroyed graphite blocks. There would be graphite lying around, etc. This was not the case.”

According to Porter, this inconsistency is what bothered Abushady the most too. He says the bombing of the reactor “would have spread particles of nuclear-grade graphite all over the site.” But none of the samples taken by the IAEA showed even a trace of graphite: graphite that would have to be there and that “would have been impossible to clean it up,” as nuclear expert Behrd Nakhai told Porter. Abushady says that

“these results are the basis to confirm . . . that the site cannot [have been] actually a nuclear reactor.”

It is presumably because of the lack of uranium and graphite in the sampling that the IAEA said that “based on all the information available to the Agency and its technical evaluation of that information, it was very likely that the building destroyed . . . was a nuclear reactor” but that it was a reactor that “was not yet operational and into which no nuclear material had been introduced.”

But there are two seemingly damning problems that seem to finally refute the Israeli-American-IAEA charge against Syria. The claim, presumably, is that there was no graphite in the environmental sampling because the nuclear reactor was not yet operational. But Scott Ritter told me in a recent correspondence that

“The graphite is an integral part of the reactor that would need to be in place prior to any nuclear material being inserted. According to the Israeli-provided images, the construction stage was pre-concrete pour, meaning graphite columns would logically be in place. Even if the graphite hadn’t been installed, it should have been present at the site awaiting installation given the alleged advance state of construction. Of course, the Israeli provided images could have been falsified, in which case no graphite would have been present. . . .”

Graphite bricks and tiles would have been part of the core structure of the building if it was a nuclear reactor. Ritter says there would have been about 30,000 bricks containing around 325 tons of graphite. If a building incorporating such bricks blew up, there would be graphite everywhere. There wasn’t. So, the nonoperational solution wilts.

So does the “into which no nuclear material had been introduced” solution. Saying that no nuclear material had yet been introduced was presumably supposed to make sense of the failure to find uranium in the environmental analyses. But rather than throwing a problematic result back at the Syrians, it only placed the problem right back in the Israeli-

American-IAEA narrative. What is not given enough attention – and maybe even none – is that if no nuclear material had been introduced to the Syrian site, there should have been no uranium found in the additional sample taken outside of protocol from the inside of the change room of the associated building. If there was uranium brought into the change room before the Syrians had brought uranium into the site, then that means it was brought in by the inspectors who found it or from some other non-Syrian source. The anomalous uranium must have been the result of cross contamination.

And that, it seems, leaves little evidence of a nuclear reactor in the middle of the Syrian desert. No uranium, no barite and not even any of the graphite that a graphite-moderated reactor would have to be made of. Only a square building that doesn't even look like the building whose resemblance is supposed to prove that the Israelis bombed a Syrian nuclear reactor in the dark of night in September 2007.

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