

A Dossier Pertaining to a der Spiegel Report of a New Nuclear Site in Syria

[The site is at 34.514 N, 36.408 E and, based on overhead imagery, appears to have started construction sometime in the interval June 2008 – September 2009.]

Version of 2015-04-24

Assad's Secret Evidence Points to Syrian Push for Nuclear Weapons

01/09/2015 09:20 PM

By Erich Follath

[EXCERPTS]

For years, it was thought that Israel had destroyed Syria's nuclear weapons capability with its 2007 raid on the Kibar complex. Not so. New intelligence suggests that Bashar al-Assad is still trying to build the bomb. And he may be getting help from North Korea and Iran.

[deletia]

Now, secret information obtained by SPIEGEL indicates that the world is once again being misled by Assad. Syria's dictator has not given up his dream of an atomic weapon and has apparently built a new nuclear facility at a secret location. It is an extremely unsettling piece of news.

Suspicious Uranium Particles

Back in 2007, it proved impossible to completely quell rumors about the mysterious building complex in the desert and its possible military purpose. In contrast to Israel and Pakistan, Syria is a signatory to the Treaty on the Non-Proliferation of Nuclear Weapons and is thus committed to using nuclear power only for peaceful purposes. And the International Atomic Energy Agency in Vienna demanded access to the site. In June 2008, Assad finally gave in to the IAEA's pressure and experts under the leadership of Olli Heinonen, a native of Finland, were allowed to inspect the destroyed Kibar facility.

It quickly became apparent that Damascus had done everything it could to destroy all traces of what had been going on there. But the atomic detectives from the IAEA were nevertheless able to find suspicious uranium particles -- a discovery that the Syrian government sought to explain away as a potential act of sabotage. Though the IAEA noted that its investigation did not turn up definitive proof, the organization requested access to three other facilities due to ongoing suspicions. The IAEA suspected that the trio of nuclear sites may be connected to Kibar, particularly the suspected enrichment facility Marj as-Sultan, located 15 kilometers north of Damascus. The Syrians refused, angered by what they called "unfounded defamation."

[deletia]

Continued Pursuit of the Bomb

The factory had been on the verge of completion and many observers believed at the time that there could be a secret cache of fuel, at least enough for a year, standing by. According to IAEA research, Syria possesses up to 50 tons of natural uranium, enough material for three to five bombs once the enrichment procedure is completed.

The Institute for Science and International Security in Washington D.C. likewise has strong indications for the existence of such stockpiles and expressed its concern in September 2013. "This large stock of natural uranium metal poses nuclear proliferation risks," the institute wrote. "It could be obtained by organizations such as Hezbollah or al-Qaida or undeclared nuclear programs of states such as Iran."

According to findings of Western intelligence agencies, however, the situation is much more explosive than previously assumed. Based on documents that SPIEGEL has in its possession, the agencies are convinced that Assad is continuing in his efforts to build the bomb.

Analysts say that the Syrian atomic weapon program has continued in a secret, underground location. According to information they have obtained, approximately 8,000 fuel rods are stored there. Furthermore, a new reactor or an enrichment facility has very likely been built at the site -- a development of incalculable geopolitical consequences.

Some of the uranium was apparently hidden for an extended period at Marj as-Sultan near Damascus, a site that the IAEA likewise views with suspicion. Satellite images from December 2012 and February 2013 show suspicious activity at Marj as-Sultan. The facility, located not far from a Syrian army base, had become the focal point of heavy fighting with rebels. Government troops had to quickly move everything of value. They did so, as intelligence officials have been able to reconstruct, with the help of Hezbollah, the radical Shiite "Party of God" based in Lebanon. The well-armed militia, which is largely financed by Iran, is fighting alongside Assad's troops.

Intercepted Conversations

Intelligence agency findings indicate that the material was moved to a well-hidden underground location just west of the city of Qusayr, not even two kilometers from the border with Lebanon. They managed the move just in time. Marj as-Sultan ultimately did fall to the rebels, but has since been retaken by government troops.

Since then, experts have been keeping a close eye on the site outside of Qusayr, one which they had largely ignored before, believing it to be a conventional Hezbollah weapons depot. Analysts compared earlier satellite images and carefully noted even the slightest of changes. Soon, it became clear to them that they had happened upon an extremely disconcerting discovery.

According to intelligence agency analysis, construction of the facility began back in 2009. The work, their findings suggest, was disguised from the very beginning, with excavated sand being disposed of at various sites, apparently to make it more difficult for observers from above to tell how deeply they were digging. Furthermore, the entrances to the facility were guarded by the military, which turned out to be a necessary precaution. In the spring of 2013, the region around Qusayr saw heavy fighting. But the area surrounding the project in the mines was held, despite heavy losses suffered by elite Hezbollah units stationed there.

The most recent satellite images show six structures: a guard house and five sheds, three of which conceal entrances to the facility below. The site also has special access to the power grid, connected to the nearby city of Blossah[*]. A particularly suspicious detail is the deep well which connects the facility with Zaita Lake, four kilometers away. Such a connection is unnecessary for a conventional weapons cache, but it is essential for a nuclear facility.

[*] According to the National Geospatial-Intelligence Agency gazeteer (<http://geonames.nga.mil/namesgaz/>), "Blossah" appears to be the village of بلوزة at 34.537 N, 36.426 E, also rendered as Blūzah, Belouzé, and Belouzi. The use of "s" in the name given by der Spiegel may be due to Arabic → German transliteration.]



[The lake 4.5 km to the east of the suspected nuclear site is labeled "بحيرة سد زينا" in Google Maps, which Google Translate renders as "Lake Dam Zeta."]

[The following four images are from the der Spiegel article]





This satellite image shows the Qusayr site's link to the power grid, one of many details of the site which have intelligence officials worried that it could be a facility for the construction of a nuclear weapon.



For years, it was thought that Israel had destroyed Syria's nuclear weapons capability with its 2007 raid on the Kibar complex. Not so. New intelligence suggests that Bashar al-Assad is still trying to build the bomb. And he is getting plenty of help. Here, a satellite image of the suspected site near Qusayr.



This image purports to show the site where a well has been dug. The well connects the facility with Zaita Lake, four kilometers away. Such a connection is unnecessary for a conventional weapons cache, but it is essential for a nuclear facility.

[der Spiegel article continued]

But the clearest proof that it is a nuclear facility comes from radio traffic recently intercepted by a network of spies. A voice identified as belonging to a high-ranking Hezbollah functionary can be heard referring to the "atomic factory" and mentions Qusayr. The Hezbollah man is clearly familiar with the site. And he frequently provides telephone updates to a particularly important man: Ibrahim Othman, the head of the Syrian Atomic Energy Commission.

The Hezbollah functionary mostly uses a codename for the facility: "Zamzam," a word that almost all Muslims know. According to tradition, Zamzam is the well God created in the desert for Abraham's wife and their son Ishmael. The well can be found in Mecca and is one of the sites visited by pilgrims making the Hajj. Those who don't revere Zamzam are not considered to be true Muslims.

North Korean Expert in Syria?

Work performed at the site by members of Iran's Revolutionary Guard is also mentioned in the intercepted conversations. The Revolutionary Guard is a paramilitary organization under the direct control of Iran's Supreme Leader Ali Khamenei. It controls a large part of the Iranian economy and also plays a significant role in Iran's own nuclear activities. Not all of its missions abroad are cleared with the government of moderate President Hassan Rohani. The Revolutionary Guard is a state within a state.

Experts are also convinced that North Korea is involved in Zamzam as well. Already during the construction of the Kibar facility, Ibrahim Othman worked closely together with Chou Ji Bu, an engineer who built the nuclear reactor Yongbyon in North Korea.

Chou was long thought to have disappeared. Some thought that he had fallen victim to a purge back home. Now, though, Western intelligence experts believe that he went underground in Damascus. According to the theory, Othman never lost contact with his shady acquaintance. And experts believe that the new nuclear facility could never have been built without North Korean know-how. The workmanship exhibited by the fuel rods likewise hints at North Korean involvement.

[deletia]

[end of Der Spiegel article]

<http://www.ynetnews.com/articles/0,7340,L-4613817,00.html>

Iran's foreign minister denies helping Syria with nuclear facility

Roi Kais

Published: 01.11.15, 13:08

Iranian Foreign Minister Mohammad Javad Zarif denied a report in German newspaper Der Spiegel that Syrian President Bashar Assad is building a nuclear facility near the Lebanese border in cooperation with Iranian experts. "The claim is meant to sow fear and lay the groundwork for to enact misguided policy towards Syria," he said at a press conference.

Syrian rebels: Iranian officers spotted near site of reported nuclear facility

Roi Kais

Published: 01.11.15, 19:32

[EXCERPT]

Following reports Syrian President Bashar Assad was building an underground nuclear facility, a senior Syrian rebel official told Saudi paper Okaz on Sunday that the Free Syrian Army has noted suspicious Syrian and Iranian movements in the town of Qusayr on the outskirts of Homs, where the facility is said to be.

According to the official, Abu Muhammad al-Bitar, the Free Syrian Army noted the presence of Iranian officers and "unprecedented" Hezbollah security in the area.

Al-Bitar said the Friday report on Der Spiegel has been discussed at length in command meetings of rebel factions in the Kalamoon area.

He went on to say that "what can be confirmed is that what's going on there is happening under direct Iranian supervision and the Syrian regime is only a cover-up for this."

Iran's Foreign Minister, Mohammad Javad Zarif, rejected the Der Spiegel report on Sunday as "ridiculous," saying "the magazine's allegation is one of the attempts made by those circles whose life has been based on violence and fear to cloud the international community with illusion and create imaginary concerns about the Islamic Republic," according to the FARS news agency.

[deletia]

<http://sana.sy/en/?p=24900>



Media source: Der Spiegel's allegations that Syria is building a nuclear station mere lies

Hazem Sabbagh

12/01/2015 [2015-01-12]

Damascus, SANA – A media source said that the allegations made by the German Der Spiegel magazine in its latest issue in which it claimed that Syria is building a nuclear station are mere lies.

The source told SANA that Syria refutes these allegations in their entirety, asserting that the allegations, which were made by a magazine that often publishes preposterous allegations devoid of credibility, contradict the most basic rules of journalism ethics, and that they are part of the conspiracy and media misdirection campaign targeting Syria.

<http://www.state.gov/r/pa/prs/dpb/2015/01/235866.htm>



Marie Harf
Deputy Spokesperson
Daily Press Briefing
Washington, DC
January 12, 2015

[EXCERPTS]

QUESTION: Marie, on Syria --

MS. HARF: Yeah, and then I'm going to go to North Korea. One more on Syria.

QUESTION: Yeah. The German weekly Der Spiegel reported last week that President Bashar Assad has rebuilt Syria's nuclear weapons infrastructure with help from Iran and North Korea.

MS. HARF: We've --

QUESTION: Can you confirm these reports?

MS. HARF: We've seen those reports, are seeking more information, certainly cannot confirm them.

[deletia]

QUESTION: On the Spiegel story, you said you're seeking -- who are you seeking more -- I mean, you know -- you should know this area better than anybody --

MS. HARF: Yes.

QUESTION: -- certainly better than a German, although highly respected, news magazine.

MS. HARF: I would agree with you that we probably have information they don't.

QUESTION: So who are you seeking information from or are you --

MS. HARF: Seeking internally or from our partners to see what more we can -- if we can cooperate this, but again, not sure we can.

QUESTION: Is that -- well, you couldn't corroborate it because of intelligence reasons or because the story's false and you want to leave it out there?

MS. HARF: We don't know yet. We just saw the reports and we're looking into it.

QUESTION: Will you discuss this issue with the Iranians in the upcoming talks?

MS. HARF: No. The upcoming talks are about the Iranian nuclear program.

QUESTION: Yeah, but if they are helping the --

MS. HARF: Yes, but we don't discuss other issues with them at those talks, as you all know.

QUESTION: But if they are --

MS. HARF: Let's move on to North Korea and let's --

QUESTION: But if they are helping the Assad regime to build a nuclear facility --

MS. HARF: I just said we're not going to. I'm not sure what you don't understand about that. We're moving on to North Korea.

http://www.mid.ru/brp_4.nsf/newsline/B6A5588EECE672C843257DCF004AC935



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49-16-01-2015

Вопрос: Не могли бы Вы прокомментировать утверждения о секретном строительстве в Сирии подземного ядерного комплекса в районе населенного пункта Эль-Кусайр на границе с Ливаном?

Ответ: По сути вопроса уже есть реакция Дамаска.

Мы же можем лишь сожалеть по поводу ущерба для репутации серьезного журнала от такого рода несерьезных публикаций.

16 января 2015 года

<http://itar-tass.com/en/russia/771675>

Allegations about Syria's construction of nuclear reactor harms Der Spiegel's reputation

January 16, 22:04 UTC+3

January 16. /TASS/. An article in German's Der Spiegel alleging that the Syrian government is building a nuclear reactor harms the reputation of this serious publication, the Russian Foreign Ministry said on Friday.

"Damascus has already voiced its reaction on that matter," the ministry said. "We can only regret about the blow to the reputation of the serious magazine from such unserious publications."

Last week, Der Spiegel published an article alleging that a reactor was being built in a hard-to-reach Al-Qusayr area, some 30 kilometers off the Lebanese border. This secret military facility, according to Der Spiegel, is allegedly guarded by Hezbollah gunmen fighting on the side of the Syrian army.

On January 12, Syria's government news agency SANA refuted this report. "This information is an absolute lie," SANA said, citing a government source. "Syria refutes these allegations and considers them as part of a slander campaign unleashed by anti-Damascus regional and international parties via contracted media."

Imagery of Suspected Nuclear Site, 2005-2014



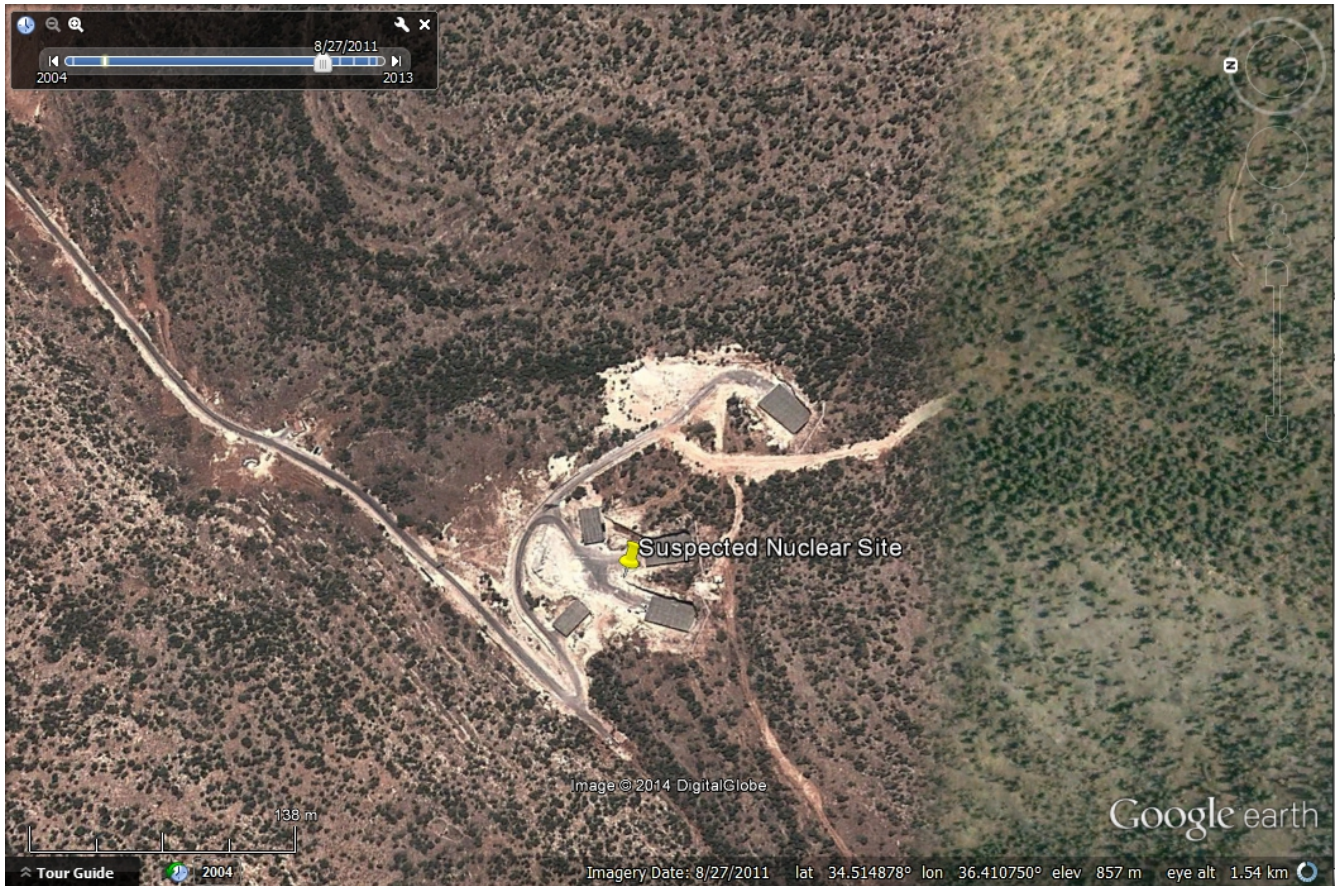
2005-11-09
Only faint trails are present.



**DigitalGlobe QB02 browse image of 2008-06-29 (North is up)
No indication of construction is visible.**



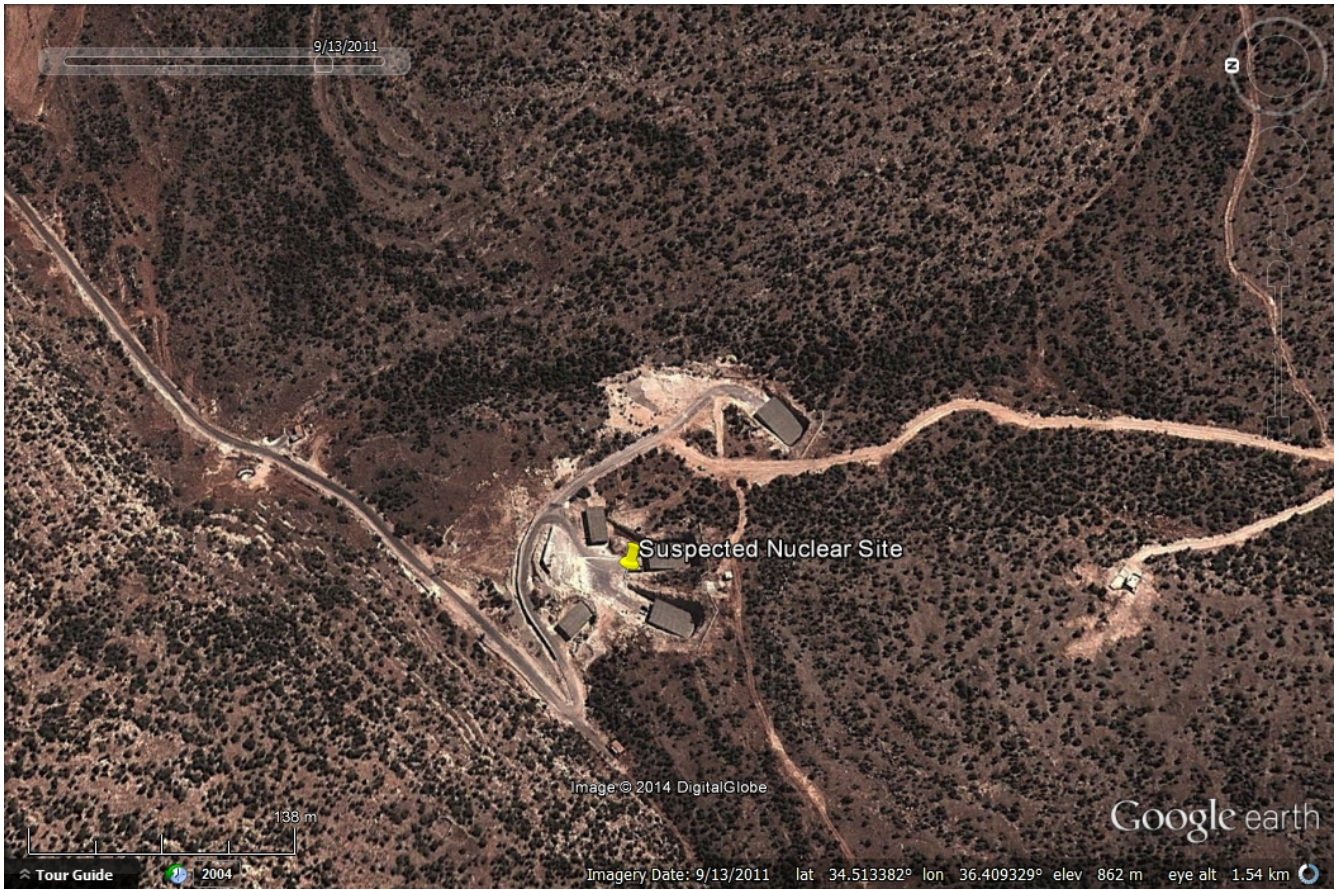
**DigitalGlobe QB02 browse image of 2009-09-12 (North is up)
Facility and road are visible in upper left corner.**



2011-08-27

Buildings present, road to hill-top partially complete

[As measured in Google Earth, the approximate dimensions of the smaller buildings are 22 x 11 meters; the larger ones are approximately 27 x 15 meters.]



2011-09-13
Hill-top structures present, new road running to the west



According to the Der Spiegel article, “*The site also has special access to the power grid, connected to the nearby city of Blosah.*” There are several objects alongside the road connecting the site to Blosah that might be pylons for a power line, although the resolution of the available imagery makes this very uncertain.

Subsequent to 2011-08-27 new trails connecting the suspected site with two new buildings appeared.

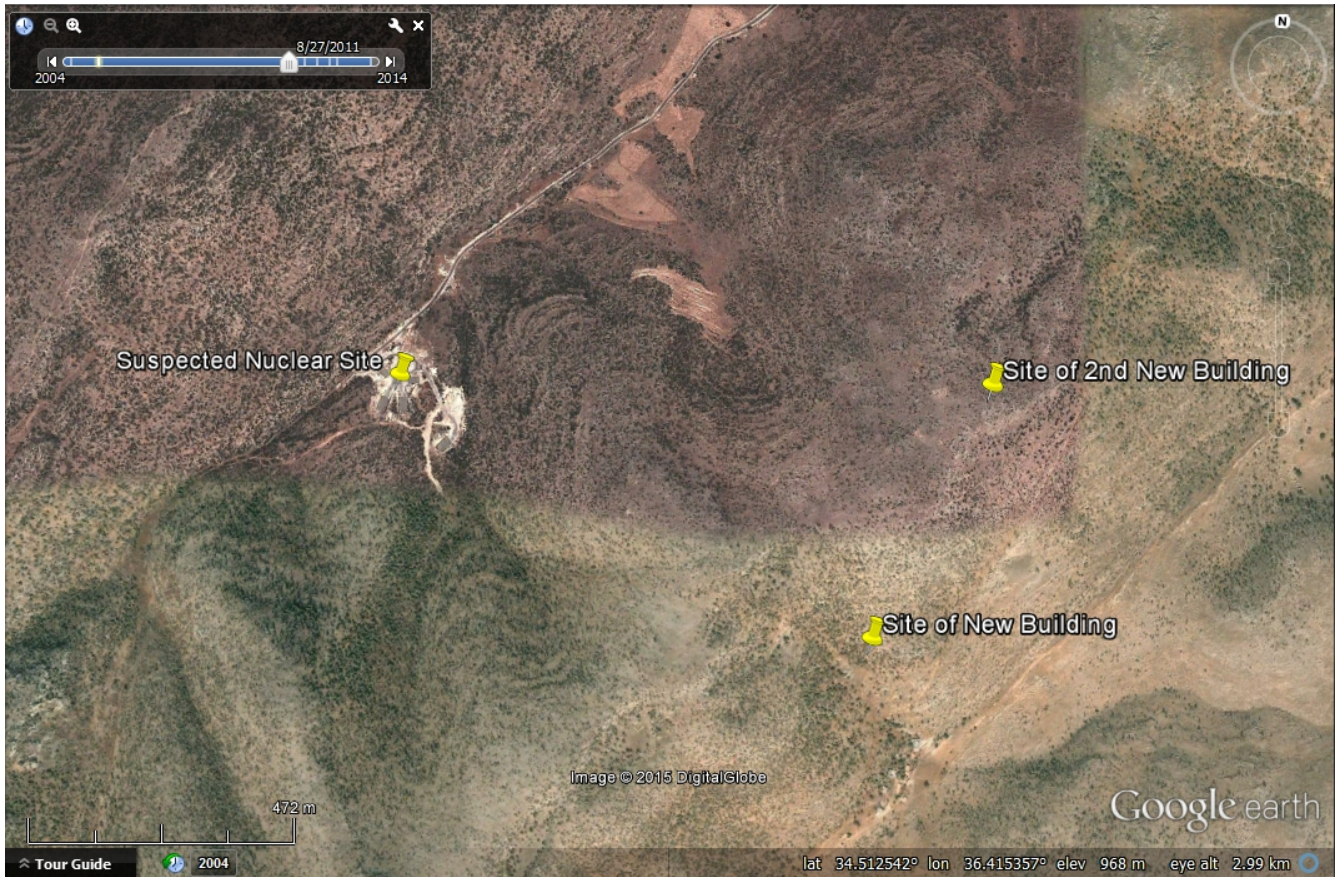


Image of 2011-08-27 before appearance of new trails and buildings

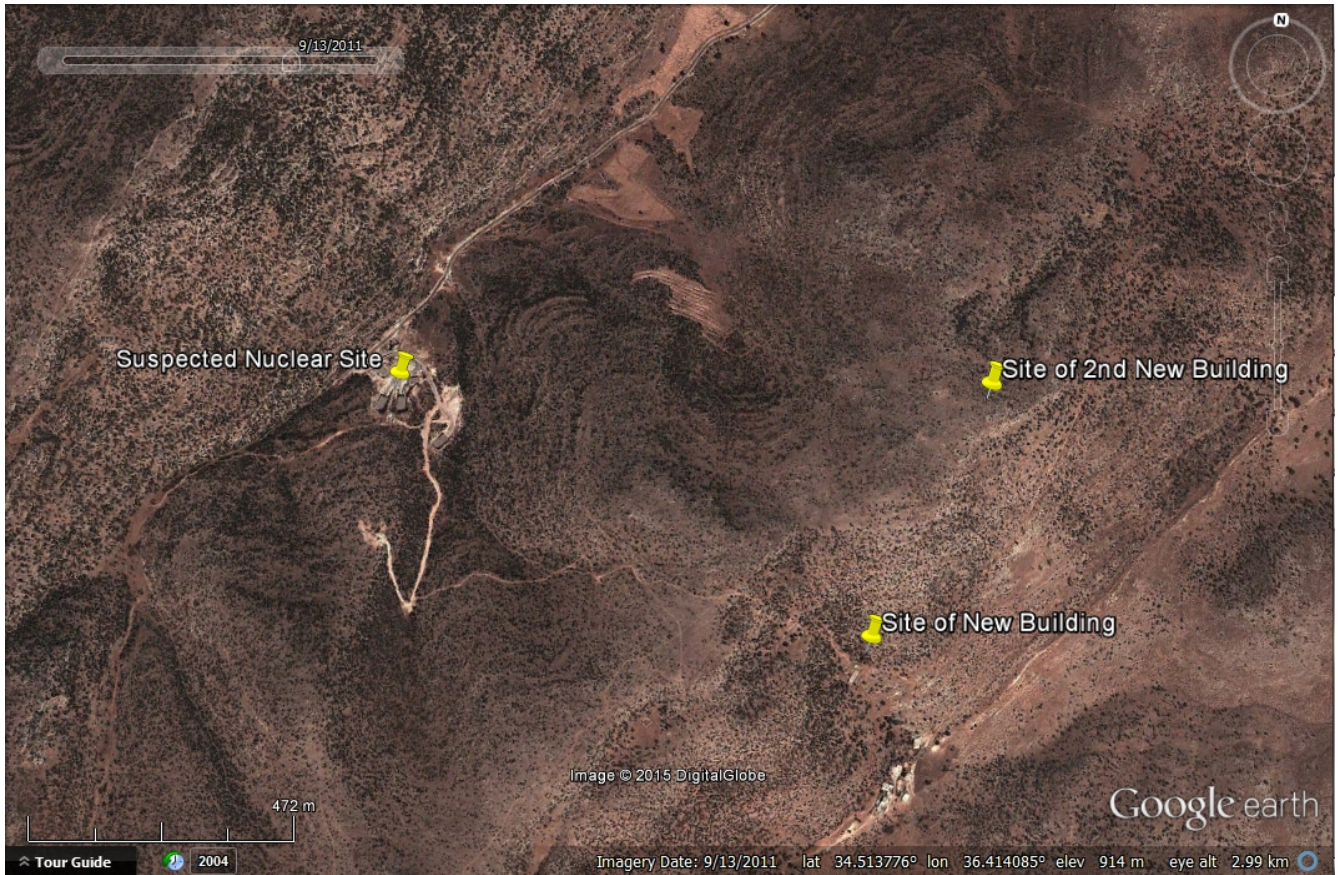
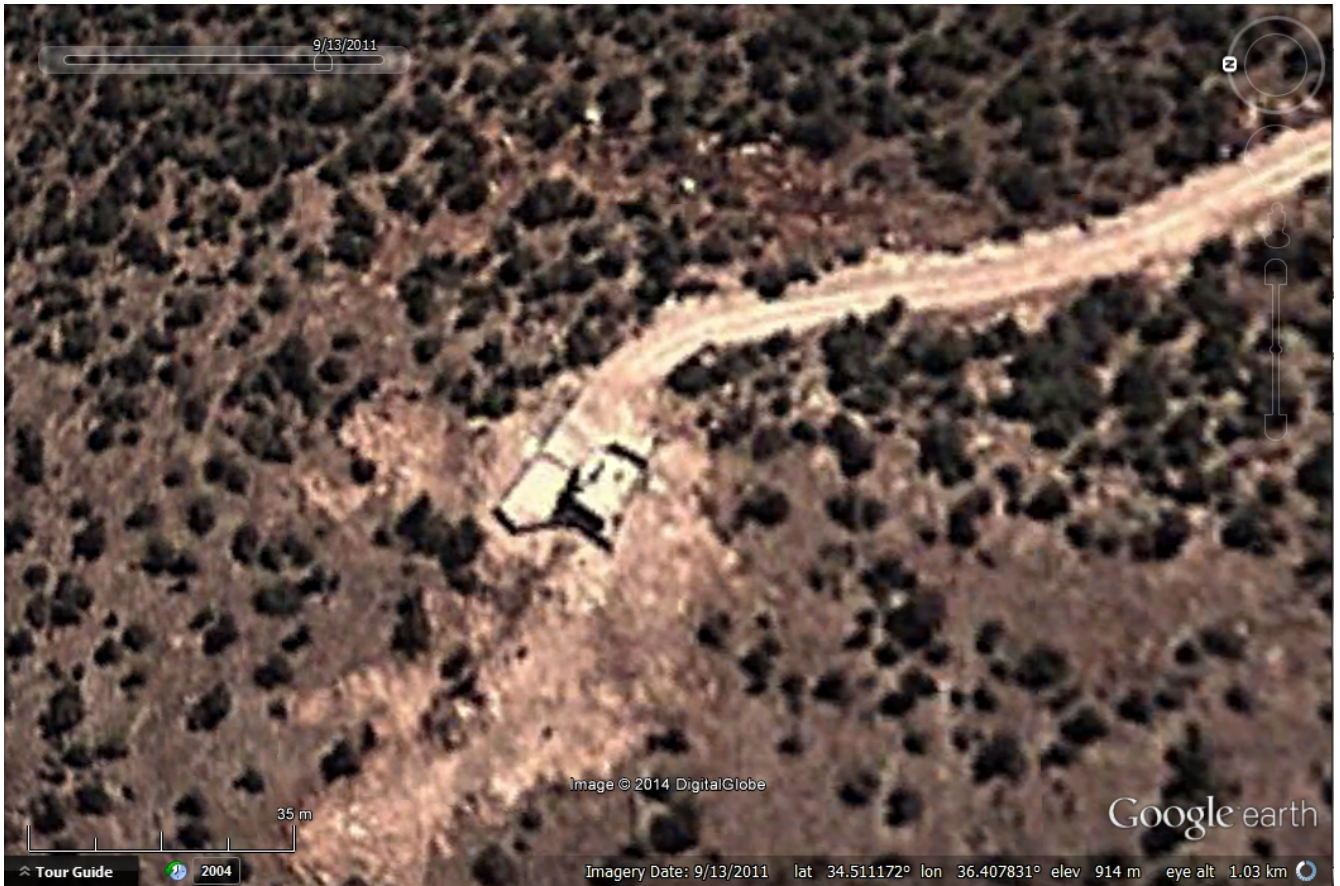


Image of 2011-09-13 showing new trail linking hill-top facility road with a new building. The association of the new building with the new road is unclear and may be coincidental.



Close-up of new building, 2011-09-13



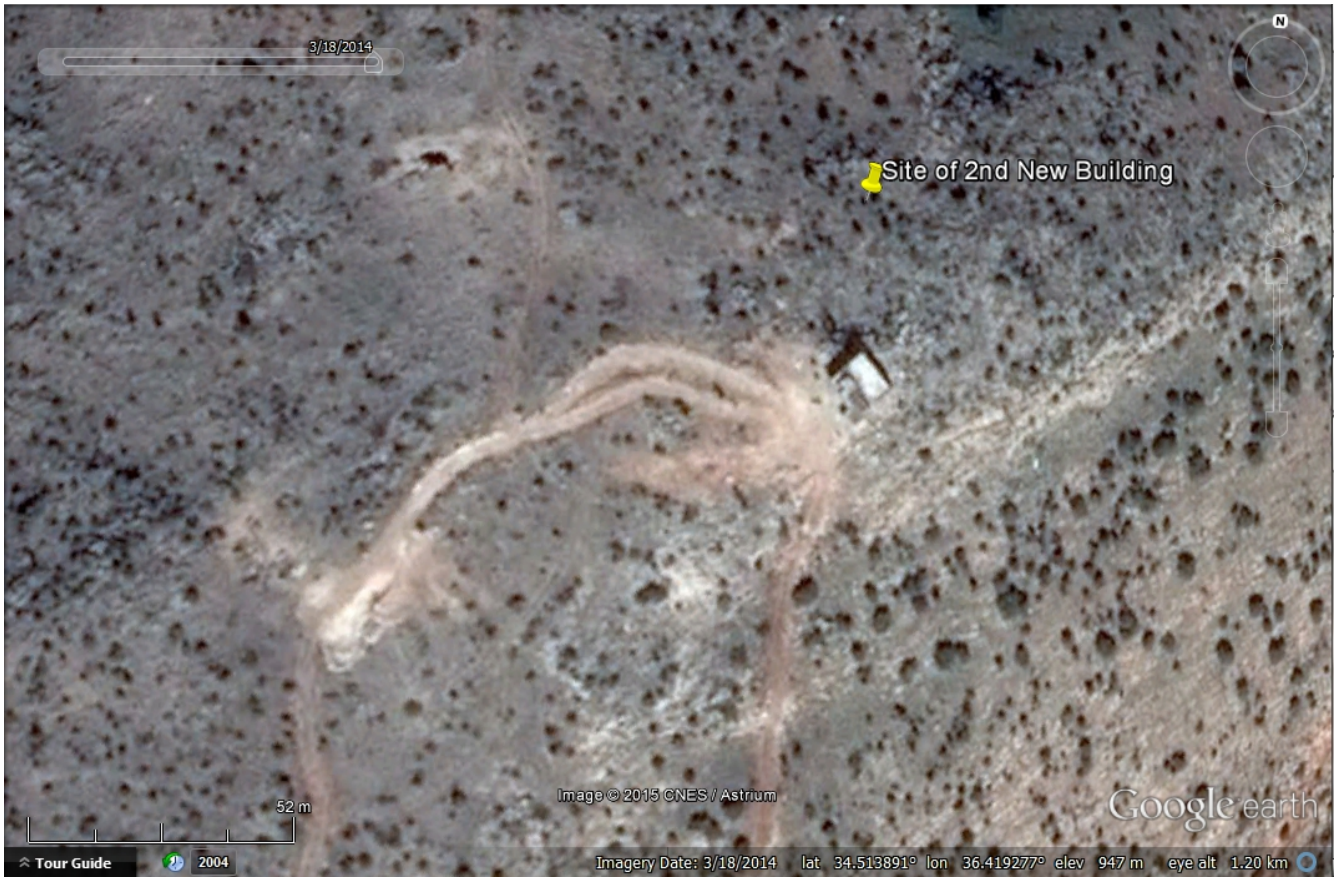
Close-up of hill-top structure 2011-09-13



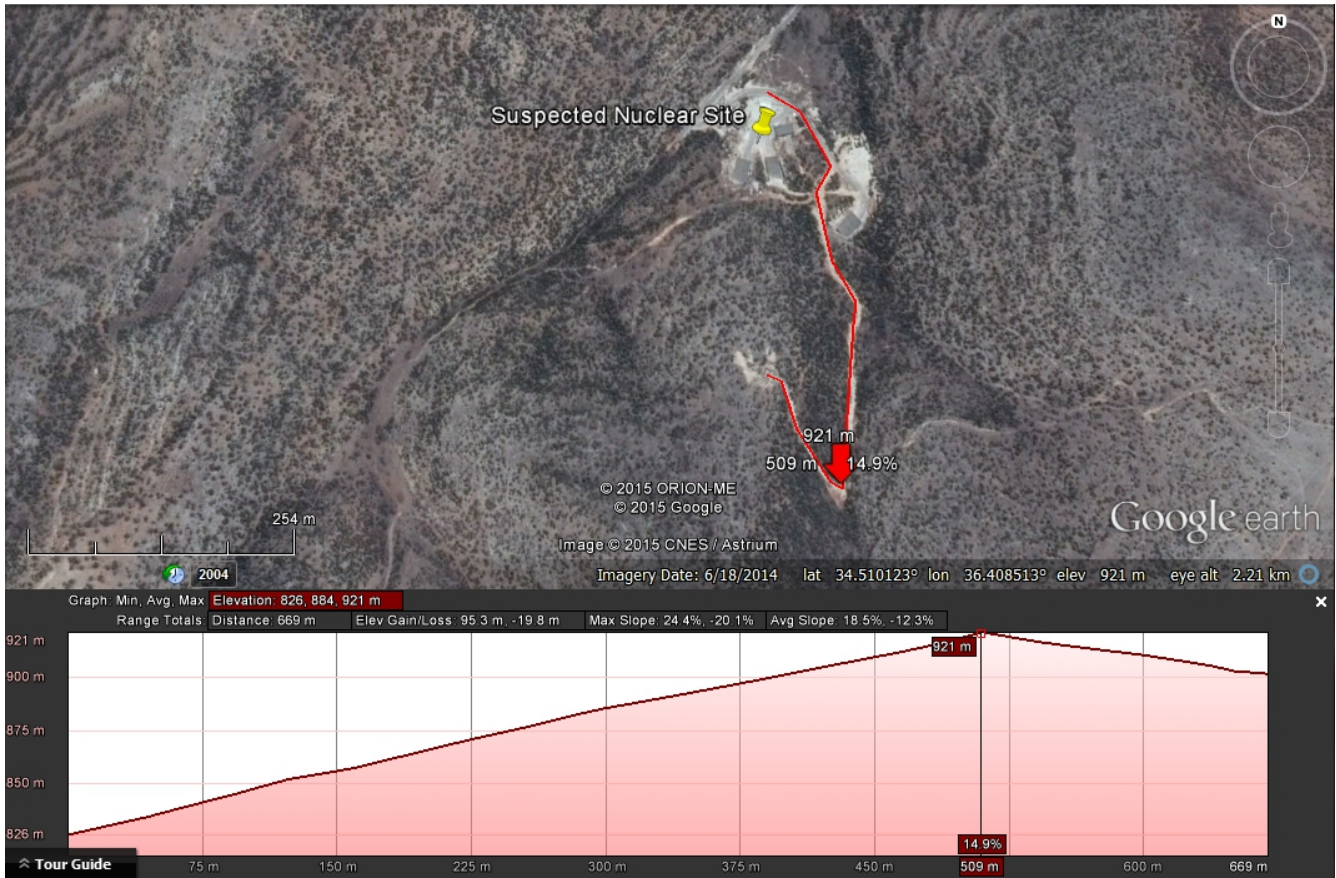
Second new building in imagery of 2013-02-26. This is the first available image showing the building. Unfortunately, the image is too dark to show the general area.



Image of 2014-03-18 showing second trail and second new building.



Close-up of second new building from 2014-03-18 image.



Elevation profile along the road from the suspect facility to the “hill-top” building. Note that the building is actually some twenty meters below the high point of the road and that the trail toward the new building connects at the high point.

**Commentary
and
Supplementary Material**

Experts cast doubt on Spiegel claim of Syrian nuclear facility

By Nicholas Blanford, Correspondent

January 11, 2015

[EXCERPTS]

Beirut, Lebanon — German news magazine Der Spiegel alleges that the government of Syrian President Bashar al-Assad is operating a secret nuclear facility close to the Lebanese border.

[deletia]

Nuclear weapons experts have voiced doubts about the claim. Iranian Foreign Minister Mohammed Zarif dismissed the report as "ridiculous."

The new alleged nuclear facility is located in a narrow valley, nine miles west of the town of Qusayr and only a few hundred yards north of the border with Lebanon, according to Der Spiegel.

[deletia]

There has been no official reaction to the report in Syria and Lebanon. Lebanon was preoccupied with a double suicide bomb attack Saturday night at a Tripoli café popular with supporters of Mr. Assad which left nine people dead. The suicide attack, the first in Lebanon since the end of June, was claimed by the Al Qaeda affiliate Jabhat al-Nusra.

In Israel, Defense Minister Moshe Yaalon told Channel 2 television that he could not "relate to a pinpoint" report but added that "there is no question" that the Assad regime had in the past built a nuclear reactor, a reference to the Al-Kibar facility that was destroyed by an Israeli air strike in 2007.

Der Spiegel's report has drawn some initial skepticism from nuclear weapons experts.

"The story is perplexing... so far we do not see anything that is distinctively nuclear," says David Albright, president of the Institute for Science and International Security which has conducted detailed satellite imagery analyses of suspected nuclear sites in the Middle East.

Although Der Spiegel describes the facility as "secret," Western intelligence agencies have been aware of its existence for several years. It has been visible on the Google Earth portal for three years and was described as a possible Scud ballistic missile storage facility in an August 2012 article in Jane's Intelligence Review, a British monthly specializing in security affairs.

The site includes three 90 feet by 50 feet drive-in revetted bunkers built into the sides of the valley and two 65 feet by 40 feet bunkers, four of them arranged around a central asphalted pad. A track leads further up the hill to a second smaller facility which Der Spiegel suggests could be a ventilation shaft.

Other imagery analysts suspect it could be related to communications.

Google Earth images of the site lack sufficient resolution to confirm the identity of this feature. Der Spiegel adds that a "particularly suspicious detail" is the "deep well" located beside the road leading to the facility which it says is connected to Zeita lake, three miles to the east. Nuclear reactors require access to large amounts of water. Syria's Al-Kibar nuclear reactor was located beside the Euphrates river. Der Spiegel did not clarify how the

“deep well” (which is not discernible on Google Earth imagery) was connected to the lake, which lies on the other side of steep hills.

“Access to water can mean many things,” says Albright. “Piping indicating both water intake and discharge would be more interesting but we do not see that.”

It is also unclear why the Assad regime would build a nuclear facility that has such an obviously military aspect. The Al-Kibar reactor was an anonymous-looking building that could have been a factory related to agro-industrial use. Syria’s alleged former uranium conversion facility at Marj Sultan east of Damascus resembled a civilian industrial estate surrounded by orchards.

But there is no mistaking the Qusayr facility for a military base. The five bunkers are identical in configuration to those found in numerous Syrian military sites, including missile bases, north of Damascus.

Furthermore, its location beside Lebanon’s northern border places it within observation range of the Israeli aircraft which patrol Lebanon’s airspace on a near daily basis. Israel says the overflights, which are routinely condemned by Beirut and the United Nations, are necessary to observe the activities of its arch foe Hezbollah.

Israeli jets often fly over the Hermel region of northern Lebanon which lies adjacent to the valley containing the alleged nuclear facility. It seems unlikely that Israel would be unaware of the facility’s existence given its reconnaissance capabilities above Lebanon and the fact that the site is well known to Western intelligence agencies.

Perhaps, the most compelling evidence that casts doubt on Spiegel's claim is the fact the site continues to exist and has not met the same fate as its alleged predecessor in an Israeli air strike seven years ago in north east Syria.

N. Korea involved with Syrian nuke site – Der Spiegel

January 13th, 2015

John G. Grisafi

[EXCERPTS]

Syria is maintaining an underground facility that is rumored to be a nuclear facility supporting the goal of developing nuclear weapons, German news magazine Der Spiegel reported Saturday, citing unspecified Western intelligence agencies.

Additionally, the report suggested that North Korean nuclear experts are involved with the site and remain involved in Syria's nuclear weapons program.

[deletia]

Der Spiegel, again citing unspecified Western intelligence agencies, also suggested that Syria is conducting its nuclear operations with the support of Iran and North Korea, specifically through the advice of North Korean experts such as Chon Chi Bu. Der Spiegel, however, mistakenly referred to Chon as "Chou."

[deletia]

Andrea Berger, a senior research fellow for Proliferation and Nuclear Policy at the Royal United Services Institute, said that the article's claims about both the nature of the site and North Korean involvement are weak and appear to be based on history, rather than new information.

"North Korea may have assisted Syria in its earlier nuclear endeavors at al-Kibar, but information presented to support the notion of a continuing North Korean link in the nuclear sphere is similarly weak," Berger told NK News. "Most of the discussion surrounds the suspected movement of Chon Chibu after the 2007 bombing of the Al-Kibar site, and the fact he kept in contact with the head of Syria's Atomic Energy Commission."

Mark Fitzpatrick, director of the Non-Proliferation and Disarmament Programme at the International Institute for Strategic Studies, however, suggested that North Korea is very likely – at least in the past – to have assisted Syria in building such a site and providing fissile material, but did say the evidence in the article was circumstantial.

"Discovery of a nuclear facility in Syria would not be too surprising," said Fitzpatrick. "The bombed reactor at Al Kibar would have required complementary facilities, including a plutonium reprocessing plant and a facility to produce fuel rods, unless North Korea was to have provided the fuel rods.

"Evidence of past North Korea involvement regarding such a newly discovered facility would also not be too surprising, given North Korea's clear involvement in the Al Kibar reactor. The evidence cited in the article regarding North Korean involvement is logical but circumstantial. 'Workmanship of the fuel rods' may indeed be a clue; if there are 8,000 nuclear fuel rods in Syria, it's hard to imagine any supplier other than North Korea."

[deletia]

The experts were also generally skeptical about the accuracy of the report and its claims regarding the nature of the site.

“The authors seem to make numerous intellectual leaps from the points that are directly attributed to the ‘intelligence analysis,’” said Berger. “Most notably, their documents allegedly discuss the movement of fuel rods to an underground site, which is a reasonable possibility. From there, however, the authors seem to conclude that the site in question is a reactor, hence the discussion over a cooling supply. There is little basis upon which to conclude that the site serves this purpose. Instead, it may be a military storage facility, perhaps for the fuel rods mentioned.”

“The deep well said to have been dug at the site isn’t much of a clue,” Fitzpatrick told NK News. A well isn’t usually a sufficient cooling source for a reactor and is not a give-away for an enrichment plant. It is unlikely that Syria is building a new reactor underground, something few countries have done.

“It is also unlikely that unbeknownst to Israel Syria has built a nuclear facility that would present a threat,” Fitzpatrick said. “If there is something at the site that is truly threatening, then Israel will be able to take measures to eliminate it. It would do so before there was a risk of spreading radiation in the atmosphere. But in any case it’s unlikely that the alleged facility in question is a reactor. If there is something nuclear-related there, the most likely thing would be the missing fuel rods.”

[deletia]

Analysis: Syria's alleged secret reactor site

Jeremy Binnie, London - IHS Jane's Defence Weekly

15 January 2015

Key Points

- Syria has reportedly established a nuclear facility in an underground facility on its border with Lebanon
- There is no evidence in the available satellite imagery to corroborate the claims

Syria has continued its nuclear weapons programme at an underground facility located in mountains close to the Lebanese border, according to "secret information" cited by Spiegel Online on 9 January.

The German website suggested it had obtained documents that represented a consensus developed by multiple Western intelligence agencies regarding the construction of the underground facility 15 km west of the town of Al-Qasyr (34.513800 36.407900), which began in 2009 after an Israeli airstrike destroyed the reactor that Syria had tried to build secretly on the Euphrates River at Al-Kibar.

The site has previously been identified by IHS Jane's as a possible weapons storage complex that could be used by the Lebanese militant group Hizbullah, which controls the adjoining Lebanese territory. While the location would be easier for the Israeli Air Force to reach than Al-Kibar, a complex of underground tunnels and chambers would be harder to destroy.

Spiegel cited communications intercepts in which a high-ranking Hizbullah official who was in regular contact with the head of the Syrian Atomic Energy Commission referred to an "atomic factory" known as 'Zamzam' as the "clearest proof" of the existence of the nuclear facility.

The magazine stated that approximately 8,000 fuel rods were stored at the facility, but then vaguely added that "a new reactor or an enrichment facility has very likely been built at the site". Fuel rods would be used in a reactor, not a uranium enrichment facility.

The report suggested that photographs of the fuel rods had leaked out, saying their workmanship "hinted at North Korean involvement".

This suggests the facility houses a gas-cooled, graphite-moderated reactor of the same type that was built at Al-Kibar, which the CIA assessed to be "similar in size and capacity" to North Korea's Yongbyon reactor. The CIA assessed that the Al-Kibar reactor was built with North Korean assistance and would have been used to turn naturally occurring uranium into plutonium for nuclear weapons.

Such reactors do not need large cooling towers, but they do need a water supply, so are typically built by rivers or the sea.

"A particularly suspicious detail is the deep well, which connects the facility with the Zaita Lake, 4 km away. Such a connection is unnecessary for a conventional weapons cache, but is essential for a nuclear facility," Spiegel noted.

The presence of this well is impossible to verify using the available satellite imagery and it would arguably make more sense for the Syrians to lay a pipeline to the lake than dig a well to extract water from the aquifer. At least one pipeline would have to be laid regardless, to dump the water that was heated by the reactor back into the lake.

No such pipelines, outlets or associated pumping stations can be seen in the available satellite imagery.

Indeed, if Syria has built an underground reactor at the site identified by Spiegel, it would represent a remarkable deception effort. Spiegel said that the work was "disguised from the very beginning, with excavated sand being disposed of at various sites, apparently to make it more difficult for observers from above to tell how deeply they were digging".

There is no Google Earth satellite imagery of the site between November 2005 and August 2011, but work on the facility appears to have been completed by the latter date. None of the vehicles, equipment, spoil piles, concrete production facility, and power stations that would normally be present during the development of a large underground facility can be seen in the subsequent imagery. Security around the facility also appears to be minimal.

The assertion that Syria built an underground reactor to produce plutonium in two years should consequently be treated with scepticism. One possible explanation is that Spiegel was deliberately leaked vague and misleading information designed to draw attention to Syrian proliferation activities at a time when Washington appears to be reluctant to support concerted efforts to depose President Bashar al-Assad and is trying to reach a deal with Iran on its nuclear programme.