



A FORTNIGHTLY NEWSLETTER ON NUCLEAR DEFENCE, ENERGY AND PROLIFERATION FROM
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OPINION – Manpreet Sethi

Fighting Nuke Threat Is No Joke

A recent article (“Obama’s Nuclear Joke”, April 4, 2014) pronounced a strong indictment of the just concluded third Nuclear Security Summit at the Hague. Describing the gathering of 53 nations and four international as well as nearly 130 non-governmental organisations on March 24-25 as a “joke gone too far”, the article recommends that “India ought not to be part of this circus”. This is unfortunately a very myopic view of the issue at hand. A more considered analysis of the significance of the summit process and the specific benefits it has brought to India is seriously called for.

The series of the NSS started in 2010 at Washington and has since travelled to Seoul in 2012, the recent meeting at the Hague, and the next one, perhaps the last, will be again hosted by Washington in 2016.

The main idea behind these gatherings of the highest political leaders has been to address the challenge of nuclear terrorism, thereby “making the world a bit safer”.

President Obama initiated this effort having reached the conclusion that the risk of nuclear terrorism was real and urgent for his country. In fact, the US NPR of 2010 ranked this threat ahead of any other, including the possibility of a nuclear exchange with America’s “near peers” such

as Russia and China. So, he sought to garner international cooperation in securing nuclear

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material worldwide and to improve security at all nuclear assets and facilities.

This was a welcome development for India. In fact, India’s experience with cross-border terrorism well predates the US awakening to the threat. Since the end of the 1990s, India has faced terrorism, sponsored and executed from Pakistan. Obviously, the threat of nuclear terrorism has been of utmost concern given that nuclear weapons (and an increasing

stockpile of highly enriched uranium and plutonium and the possible addition of tactical

nuclear weapons in the future) and terrorism co-exists in Pakistan. Therefore, the most important gain from these summits is that they have brought global attention to nuclear terrorism.

By demanding national action and responsibility for securing nuclear and radiological materials, the summits have universalised a threat that India was fighting a lonely battle against. Attention to these issues at the highest political level across countries has ensured their inclusion in national priorities and the allocation of necessary resources to turn commitments into reality. Heads of governments at the summits have individually and collectively pledged to taking measures to secure nuclear material on their territory according to certain accepted international benchmarks. That Pakistan, too, has taken several measures in this direction is evident, and this is good news for India. India could not alone have been able to persuade or demand such actions from Islamabad.

Having secured a degree of success in this direction through international action, it is only natural that India (through the external affairs minister who represented the country at the Hague) raised another issue of particular national concern at the third summit. He sought to focus international attention not just on the threat posed by the possibility of non-state actors acquiring nuclear material to cause nuclear terror, but also on the need for state accountability in combating terrorism, dismantling its support structures or its linkages with weapons of mass destruction.

This is not a stray statement. It raises the crucial nuclear challenge that India faces where a nuclear-armed state that believes in the policy of terrorism becomes a complicit partner in an act of nuclear terrorism. Is it not worthwhile then that India has used the platform of the NSS to voice a national concern before an international audience, thereby demanding

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adopt the same rigour in implementation of their efforts. In any case, there is no punishment for non-compliance and many smaller nations have opposed the rise in need for reporting as burdensome and distracting from other national priorities. But this shortcoming does not in any way take away from the fact that the forum has generated a certain momentum on nuclear security and got nations sensitised to a shared responsibility and a sense of collective stake-hood in a global challenge.

Nuclear security is not the requirement or demand of one nation. The fact that a country as militarily capable as the USA has felt the need for collective effort in this direction proves that it is a shared risk and hence a shared responsibility that must be carried by all if we are to minimise, if not obviate, the possibility of nuclear terrorism. India's

participation in the NSS is indeed an opportunity to seek collective redressal of an individual threat, and also a contribution to international security—a win-win proposition.

Finally, the summit process gives India the opportunity to be engaged in the non-proliferation regime without carrying the baggage of its non-membership of the NPT. Even though India has managed to marginalise the treaty for itself as a result of the exceptionalisation that it earned from the NSG, the more India

participates in multilateral non-proliferation instruments, the less will India's non-subscription to the NPT matter.

The NSS is not a panacea for all of India's nuclear challenges, which are indeed many and unique,

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stemming as they do from states (individually and in nexus) and non-state actors. But to the extent that it addresses some of these concerns it is useful. India should exploit the opportunity and the platform to its benefit, as it adroitly has. Nuclear terrorism is no laughing matter and India should join the international community in every forum that brings global spotlight on the issue in general, and to the threat we face from our neighbourhood in particular.

Source: <http://www.newindianexpress.com>, 01 May 2014.

OPINION – Ajay Shukla

New Govt Needs New Nuclear Policy and Posture

The Bharatiya Janata Party's election manifesto has triggered a long-overdue discussion of India's decade-old nuclear weapons doctrine. Some analysts interpreted the BJP's undertaking that it would "revise and update" the doctrine as an intention to revisit India's "no first use" commitment. Narendra Modi, the BJP's PM candidate, quickly denied any such intention. The debate, however, has come alive....

Since both India's regional adversaries, Pakistan and China, possess a robust second-strike capability, or a nuclear arsenal that would survive an all-out Indian attack, equal retaliation should be expected across India. Instead of this mayhem, which Indian policymakers would probably shrink from triggering anyway, I argued that New Delhi should opt for a "flexible response" that would allow decision makers and more credible option. I pointed out that American doctrine had graduated from massive retaliation to flexible response in the 1950s and 1960s after US strategists realised the inherent credibility shortfall in a threat that consigned both sides to "mutual assured destruction", appropriately shortened to MAD.

On April 23, 2014 Shyam Saran, the National Security Advisory Board chief, weighed in on these

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pages, flatly rejecting doctrinal change. He declared that nuclear bombs were not weapons of war, but of mass destruction. A tactical nuclear strike on, say, a tank column (counter-force targeting) that killed a few dozen soldiers was, he suggested, in the same league as a strategic strike on a city that killed millions of civilians (counter-value targeting). He quoted a 1950s American game theory expert who postulated that even the smallest nuclear strike would inevitably escalate to an all-out nuclear conflagration.

While rightly averring that doctrine must be in line with a country's nuclear forces and command structures, Saran questionably concluded that the configuration of our nuclear assets — the strategic triad of land, sea and airborne nuclear forces — made doctrinal change difficult. It is hard to agree with that; were force structures to shape doctrine, it would be the tail wagging the dog.

In this column, I shall point out that India's NFU declaration sits uneasily with the understanding that China constitutes a growing security threat. India's nuclear deterrent — its last defence against a massive conventional attack by China — becomes unusable with a declared NFU policy. The country, weaker in conventional forces, has always used a nuclear deterrent to hold off the stronger. India's declared NFU devalues our nuclear deterrent against

Chinese attack. The choice between massive retaliation and flexible response is more complex and relates mainly to Pakistan. Massive retaliation is a simple policy, requiring standard weapons and simple but secure command structures.

Since flexible response requires a broader menu of weapons and structures, which create options for decision makers, it also arouses non-proliferation concerns. Advocates of massive retaliation forget – in their understandable wish, perhaps, to portray India as a "responsible nuclear power" – that India's basic deterrence objective against Pakistan must be to

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Pakistan's deep fear of being overrun by Indian conventional forces causes it to position low-yield, tactical nuclear weapons with its military reserve formations; one of these might be used to warn India to halt an otherwise unstoppable conventional offensive. Instead of immediately escalating to a mutual holocaust, India's escalation should be gradual, allowing conventional operations to continue until conflict termination objectives are achieved. The nuclear deterrent must be refashioned to ensure dominance at each rung of the escalation ladder, with massive retaliation always a lingering threat.

Like with America in the early 1950s, India's massive retaliation doctrine faces a credibility deficit. A Pakistani threat to use a TNW on its own soil against Indian military targets – killing at the most a few tens of our soldiers – would be obviously more plausible than the Indian counter-threat of "massive retaliation", which involves destroying multiple Pakistani cities and the deaths of millions of civilians.

With Pakistan's second-strike capability likely to cause equal damage in India, India's obviously rational (and historically ultra-cautious) decision makers are unlikely to prevail in a MAD chicken game with Islamabad. New Delhi's commitment to massive retaliation also has much to do with keeping the military out of nuclear policymaking.

Flexible response, which involves complicating the calculus of potential opponents, would require our civilian decision makers to master a broader range of technicalities, and our military to play a larger role in shaping and manning the deterrent. Instead, our civilian decision makers content themselves with a nuclear doctrine so simple – even simplistic – that the military itself is largely superfluous. By sticking doggedly to massive retaliation, India's leadership successfully keeps the military out of

nuclear strategising. In the final balance, our nuclear weapons doctrine remains unconvincing because decision makers fail to separate ideology from realism.

India's pioneering role in global disarmament is well known; but war is not a UN General Assembly debate or a Conference on Disarmament meeting. Phrases like "Nuclear weapons are not weapons of war; they are weapons of mass destruction" are useful debating gambits in these forums. Yet, it would be self-defeating to be fooled by our own rhetoric. Away from the seminar rooms, especially during the feverish decision making in any conflict, both sides get to vote on whether nukes are usable weapons of war.

If Pakistan decides they are – and the addition of TNWs into its arsenal suggests exactly that – then New Delhi's fervent insistence that nuclear weapons are unusable is mere wishful thinking. The new government must initiate a comprehensive

review of our nuclear weapons doctrine and posture.

Source: <http://www.rediff.com/>, 29 April 2014.

OPINION – Jayant Prasad

For A Clear Nuclear Doctrine

For India, nuclear deterrence is defensive and a means to secure its sovereignty and security. Its strategy of assured retaliation, combined with "no first use," provides adequate guarantee for this purpose. The strategy was unveiled concurrently with its 1998 nuclear tests, which ended the determined US bid to prevent India from acquiring nuclear deterrent. Ironically, India's nuclear weapons tests, together with the rapid expansion of its economy, transformed its global outlook and relations with the US and the world.

The Chinese nuclear weapons test of 1964, on the heels of the 1962 war, had always rankled in Indian minds. K. Subrahmanyam and K.R. Narayanan, at the time in the early years of their public service, advocated a matching Indian response. This did not

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then have resonance at the top, as India was facing the twin crises of food and finance.

The P-5 states treated non-proliferation as their default foreign and security policy objective, but this was invariably trumped by national interest. India's restraint and decision not to weaponise its nuclear capacities after the 1974 test were well known. Yet, when Pakistan accelerated its nuclear proliferation, it was not stopped in the wake of the Soviet occupation of Afghanistan, when US President Jimmy Carter designated Pakistan a "frontline" state.

The Chinese transferred nuclear materials and technology to Pakistan, including the weapons design and the means to deliver them – the solid fuel 300-kilometre range M-11 ballistic missiles. In a paper published in 1972, Professor Wayne Wilcox of Columbia University, then working as cultural attaché in the US Embassy in London, perceptively recognised that India's policy concerning China and Pakistan "is to hedge all bets and cover all contingencies." India was compelled to acquire nuclear weapons to deter nuclear blackmail in its contiguity.

Unlike Pakistan or Israel, India could not have a "recessed" deterrent or bomb in the basement, given India's governance practices. Contingent factors delayed India's nuclear weapons tests, such as the persistent external pressure on India, and arguments by internal agnostics who claimed that such testing would betray India's long-held principles, diminish its international standing, and reduce future GDP growth rates by up to 2% annually. In 1995 came the perpetual extension of the NPT, without linking it to the complete elimination of nuclear weapons. The conditions attached to the 1996 CTBT, which could foreclose India's nuclear weapons option, became the final point of conviction. From then on, the question was not whether to test but when.

For India today, the choice is clear, as it was in 1998: so long as nuclear weapons exist, India's nuclear deterrence will have to be maintained. Until there

is a global compact for creating a nuclear weapon-free world, India will have to persevere with this policy.

What is Credible Deterrence?: In delivering the message of credible deterrence, all nuclear weapons states, including those that have embraced no first use, face a conundrum. Nuclear weapons are weapons of the last resort, fundamentally different from conventional weapons. War is a traditional tool of statecraft, but the weapon to end all wars cannot be a standard instrument of an ordinary war – it can only be the final recourse for dissuasion. It cannot be chance, for then it will fail to deter. While embracing a declaratory policy to

avoid nuclear war, the state concerned must simultaneously demonstrate that it has nuclear war fighting capacity – the resilience to take the pain of a first strike, and both the ability and resolve to inflict massive and intolerable destruction on the attacker.

For improving its punitive capacity, China is seeking a sea-based nuclear deterrent,

deploying mobile solid-fuel missiles, and moving missiles below the surface in elaborate tunnels in mountainous terrain, undetectable from space, called the "Underground Great Wall." The same motivation has led India to similar pursuits. India's missile force, the weak link in its deterrence, is under rapid repair. Its transformation is enabling the shift toward strategic deterrence. In the past half-dozen years, India has invested in improving the command, control, communications, and intelligence systems and its second strike capacity, including the survival of the decision-making structure. The NCA deserves credit for this. Simultaneously, the sea-based leg of the triad of delivery systems is taking shape — even if at a slower pace than the situation warrants. India might also have to do more to communicate effectively that its deterrent carries credibility.

In popular domestic imagination, India's assurance of "credible minimum deterrence" is confused with minimum credible deterrence, as if it connotes an arbitrary limitation. The essential prerequisite for

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nuclear deterrence is as much the sufficiency of the retaliatory capacity as the surety of response. This hinges on the size and nature of the arsenal and delivery systems, their survivability in the event of a pre-emptive attack, and the realisations by a potential adversary that the costs of attack outweigh the gains.

All nuclear weapons states that have robust missile programmes retain their first strike capabilities, since conventional missiles of short and intermediate ranges can be mated equally with nuclear or non-nuclear warheads, and can be used to attack nuclear facilities. At times doubts arise about the "responsible" behaviour of certain states, such as when Chinese President Xi Jinping did not mention China's no first use doctrine in a defence policy speech delivered in December 2012 to the Second Artillery Corps, or when the Chinese Defence White Paper, released in April 2013, did not contain the standard reiteration of this doctrine, thereby creating doubts about a shift in its nuclear policy.

While India remains watchful, most P-5 states appear to be settling into a more stable deterrence, discounting first strike weapons, despite holding a range of nuclear weaponry and delivery mechanisms. Under the 1987 INF Treaty, the US and USSR had agreed to eliminate their intermediate and shorter range missiles between 500 and 5,500 kilometres. Pakistan alone is going in the other direction.

Myth of Flexible Response: The US and Russia did contemplate flexible response and limited use of nuclear weapons in specific theatres in the hope of containing damage to their homelands. A graduating use of nuclear weapons is not possible, except in theory books and planning exercises. Envisaging escalatory nuclear weapons exchanges is even more difficult in India's security context: here, the space and time span between launch and delivery is non-existent. "Controlled" nuclear war between the US and Russia is hard to imagine. Between India and

China, or between India and Pakistan, it is impossible.

Admittedly, nuclear weapons can be used for coercion, but up to a point, and with some success only against a non-nuclear state. The experience of Kargil 15 years ago demonstrated how the leaders of the Pakistan Army took the wrong lesson from deterrence. They believed that with the advantage of stealth and shock, they could upset the conventional status-quo, without inviting an effective riposte for fear of a nuclear exchange. This was a serious miscalculation, as they discovered to their cost. Changing India's defensive nuclear doctrine to complicate their calculus will be irresponsible. India can survive a first strike but

Pakistan cannot. What incentive would Pakistan have to consider a second strike if it believed India could attack it first? As for the growing non-nuclear threats to security, India can meet them by augmented conventional preparedness, hardened defences, upgraded equipment and a strong indigenous armament industry.

Toward a More Secure India: The foremost threat to Indian security today comes not from its nuclear posture or externally, but from social deprivation and

anaemic economic growth. Unshackling its entrepreneurship, accelerating infrastructure development and regenerating growth will make India safer. There is a clear vision in India on what has to be done. The new government should focus on how best and quickly to do it.

As Shyam Saran, Chairman of the NSAB has said, it would be best to put to rest any further speculation of a change in India's nuclear weapons policy. For a credible deterrent, constancy of doctrine in its core essentials has definite merit. The BJP has embraced the national inheritance on no first use. India's nuclear deterrent can be made more robust, meanwhile, by continuing the work to guarantee the efficacy of its retaliatory strike.

Source: <http://www.thehindu.com/>, 06 May 2014.

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OPINION – Debalina Ghoshal

In Westernmost Russia, A Tactical Nuclear Base Emerges As A Threat to NATO Countries

In response to the US missile defense system in Poland, Russia is reported to be planning to field a tactical nuclear weapon, called the Iskander, in the region of Kalingrad, in westernmost Russia. Many view Iskander missiles, with a range of 400 km, as a weapon that could have military and political influence.

Historically, Kalingrad was German territory until World War II and was known as Königsberg. Germany lost the territory to the Soviet Union in 1945; at the Potsdam Conference, it became a part of the Soviet Union. During the Cold War, Kalingrad was heavily militarized, forming a “strategic outpost” designed to avert attack from West, check on the Baltic States and exert influence over the Baltic Sea. This is not the first time reports suggested Russia is planning to place tactical nuclear missiles in Kalingrad. In 2001, Russia fielded SS-23s and, later, the Tochkas. The region borders Poland, a former Soviet satellite state, and Latvia, Lithuania and Estonia countries that came under authority the Soviet Union during the Cold War.

After the Crimean crisis, the idea of placing Iskander missiles in Kalingrad has made these states wary of Moscow’s intentions. Ever since Poland and the Baltic states became NATO members, Russia’s security concerns have grown.

Tactical nuclear weapons could be Russia’s message to NATO and the United States to not interfere with its expansionist strategies. Poland and Lithuania, both of which border Kalingrad, have raised concerns over the missiles. Moscow justifies its stance on its “right” to station missiles in the region as a “logical response” to the US missile defense threat.

In 2012, Lithuanian Minister of National Defense, Rasa Juknevičienė, said the test launch of the Tochka missile in the Kalingrad region confirmed Russia’s

desire to “demonstrate its military power in the Baltic region.” That process continues. According to a Russian political scientist, Vladimir Abramov, Kalingrad is being viewed by the West as a “nuclear pistol.”

It would be difficult for the Baltic States and Poland to keep pace with Russia’s modernization of offensive forces. President George W. Bush’s decision to place missile defense systems in Poland and other parts of Eastern Europe, including the Czech Republic, insured that the Kalingrad region was bound to become a flash point for future nuclear conflicts.

As a party to the INF Treaty, Russia is forbidden from developing ground-launched nuclear capable ballistic and cruise missiles within a range of 500 km to 5500 km. It can only deploy nuclear weapons with a range lesser than 500 km; these weapons have to be deployed close to the borders of the territory to be threatened.

Though the United States has clarified that the missile defense system in Europe is to counter threats from rogue states like Iran, Russia does not buy it. In fact, Russia calls the Iranian missile threat portrayed by the

United States as a “fairy tale.” Moscow believes the missile defense system in Europe is designed to negate its nuclear deterrent capability. Even though the United States has cancelled the fourth phase of the missile defense system to avoid angering Russia, Moscow continues to militarize Kalingrad.

In 2008, when Poland agreed to field the Bush missile defense system, Moscow threatened Poland with nuclear attack. As Russia continues to move its missiles closer to Kalingrad, the question that arises is will Moscow be able to launch a nuclear attack on Poland, Romania, Turkey and Spain, NATO states where US defense missiles are in place? Article 5 of the NATO Treaty obligates members, including the United States, to come to the aid of these states.

In 1991, Russia had pledged to keep the Baltic region free of nuclear weapons. However, if Russia starts to deploy its nuclear weapons in Kalingrad region,

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it could violate that pledge. Russia also expresses concern over the US B-61 tactical nuclear weapons stationed in Italy, Germany and Turkey. With this concern in mind, Russia has also fielded the S-400 anti-missile systems in Kalingrad that could intercept incoming missiles. Hence, the arms build-up in Kalingrad includes both offensive and defensive weapons.

Although many analysts have suggested denuclearization of the region, such a step has never been officially taken by Moscow. If the United States is to move ahead with its own missile defense program in Europe, it must include Moscow in that program too. Otherwise, there could be severe instability and Europe could become the next nuclear flashpoint.

Source: <http://www.globalpost.com/>, 6 May 2014.

OPINION – Anil Sasi

Nuclear Power the One Bright Spot in Year of Core Slow Down

2013-14, a dismal year for most of the country's core sector industries, was interestingly, the best 12-month period for atomic power generation in nearly a decade. The performance of Indian nuclear power plants, as well as of the several fuel cycle facilities, reached their highest levels last year. The capacity factor – or operational efficiency – of the 20 nuclear power reactors currently running in the country rose to a record 83 per cent. Gross generation was powered by a combination of two factors: international cooperation leading to augmentation of fuel supplies to 10 reactors that qualify for imported fuel, and a sharp improvement in domestic fuel production for the other 10.

The total installed capacity of all reactors is 4,780 MWe. Under the "separation plan" announced by the government in March 2006, negotiated after the July 2005 nuclear deal with the US, India was required to 14 reactors under IAEA safeguards in a phased manner. Ten of these reactors – RAPS 2 to 6 at Rawatbhata, Rajasthan, KAPS 1 and 2 at Kakrapar,

Gujarat, and TAPS 1 and 2 at Tarapur, Maharashtra – are already under IAEA safeguards, and eligible to run on imported fuel. They are now operating at full capacity, officials of NPCIL, which runs the country's nuclear power plants, said.

The other 10 reactors – KGS 1 to 4 at Kaiga, Karnataka, NAPS 1 and 2 at Narora, Uttar Pradesh, MAPS 1 and 2 at Kalpakkam, Tamil Nadu, and TAPS 3 and 4 at Tarapur, Maharashtra – with a gross installed capacity of 2,840 MWe, continue to use uranium sourced within the country. Supply from domestic mines was up 8 per cent in 2013-14, touching 812 metric tonnes, and resulting in higher capacity utilisation in these 10 reactors. Two units at Narora will come under IAEA

safeguards this year. One reactor, RAPS 1 at Rawatbhata, Rajasthan (100 MWe), is under extended shutdown for techno-economic assessment.

The DAE reckons the annual fuel requirement for operating the indigenous PHWRs at 85 per cent capacity is about 45 tonnes of uranium dioxide for the older 220 MWe units, 100 tonnes for the 540 MWe units and 125 tonnes for the new 700 MWe units. By contrast, the requirement of low enriched uranium for operating the imported LWRs at 85 per cent capacity factor are 6 tonnes for the older 160 MWe Tarapur units and 27 tonnes for 1,000 MWe units such as the Russian-built units at Kudankulam in Tamil Nadu.

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The total installed capacity is scheduled to reach 9,980 MWe at the end of the current five-year plan period (March 2017), as seven new reactors are commissioned. These include two imported LWRs of Russian design, four indigenous PHWRs, and one indigenous prototype fast breeder reactor (PFBR). NPCIL had planned to start work on 16 new reactors with a total capacity of 16,100 MWe in the course of the 12th plan (2012-17). These included eight indigenous PHWRs of 700 MWe each with a total capacity of 5,600 MWe and eight LWRs based on international cooperation – with Russia, France and the US – totaling to a capacity of 10,500 MWe.

Source: <http://indianexpress.com>, 06 May 2014.

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OPINION – Zachary Keck

Is Iran Ten Years Away From a Nuclear Bomb?

The former head of Israel's nuclear agency says that Iran is at least a decade away from acquiring an operational nuclear weapon. According to Israeli media outlets, Brigadier General (res.) Uzi Eilam, who served for ten years as the head of the Israel Atomic Energy Commission, said that it would take Iran a decade to acquire a nuclear deterrent, and it might not even be seeking one. "The Iranian nuclear program will only be operational in another 10 years," Eilam said *Ynet News* reported. "Even so, I am not sure that Iran wants the bomb."

Eilam said he based his assessment on his long history of working on Israel's atomic and missile programs. "From being involved in many technology projects, I have learned the hard way that things take time," Eilam said. He also went on to say that the interim nuclear deal Iran signed with the P5+1 powers was significant in reducing Iran's breakout capacity. "According to reports, the steps Iran has taken are most significant, the primary step being the dilution of more than half of its enriched fuel."

He continued: "The main issues [for a diplomatic solution] are still ahead of us, but it is definitely possible to be optimistic. I think we should give the diplomatic process a serious chance, alongside ongoing sanctions. And I'm not even sure that Iran would want the bomb – it could be enough for them to be a nuclear threshold state – so that it could become a regional power and intimidate its neighbors."

Eilam has a long history in the Israeli security establishment. Beside his stint as Israel's atomic chief, as well as his military experience, Eilam has served as the Chief Scientist and Director of R&D in the Ministry of Defense. He also held positions in the Office of the Prime Minister, as well as in other parts of the MoD. Eilam's assessment about how far away Iran is from a nuclear arsenal is likely correct, although it's important to understand what he actually said. At first glance, his statement seems to grossly contradict the most recent public intelligence

assessments of Israel and the US, which predict that Iran could acquire a nuclear capability as soon as 2015 (the assessments are slightly dated at this point, and came before the nuclear deal however).

But part of this discrepancy is due to different definitions of when Iran would become a nuclear state. This should not be a surprise as the question of when a state become a nuclear weapons power is somewhat ambiguous. Moreover, as Jacques Hymans has pointed out, how one answers this question has "significant implications for proliferation assessment, analysis, and policy." Many Iran hawks, including Israeli Prime Minister Benjamin Netanyahu, insist that Iran would become a nuclear weapon state once it had acquired the necessary fissile materials (highly enriched uranium or reprocessed plutonium) for a nuclear device. In some ways, this makes sense as once a state can

indigenously produce the fissile material, it becomes extremely difficult for foreign powers to deny them the ability to construct a nuclear device. By this standard, however, a country like Japan would qualify as a nuclear weapon state. Indeed, according to the US intelligence community, Iran more or less has this capability already, even if it hasn't actually

produced the fissile material yet.

On the other hand, from what is public about the assessment of Western intelligence agencies, they appear to assess that Iran would become a nuclear weapons state once it had assembled a nuclear device. By this standard, North Korea would be considered a nuclear weapon state despite its apparent inability to deliver a nuclear warhead. Eilam's statement refers to the time it would take Iran to develop an operational nuclear arsenal. At the very least, this would mean when Iran is capable of reliably delivering nuclear weapons, which would almost certainly be in the form of nuclear-tipped missiles (He could also mean when Iran has a secure, second strike capability, although this seems less likely).

In that sense, Eilam's prediction is not implausible by any means. After all, North Korea conducted its

From what is public about the assessment of Western intelligence agencies, they appear to assess that Iran would become a nuclear weapons state once it had assembled a nuclear device. By this standard, North Korea would be considered a nuclear weapon state despite its apparent inability to deliver a nuclear warhead.

first nuclear test eight years ago and it has yet to demonstrate it has an operational nuclear weapons capability. Moreover, Iran's nuclear program has progressed even more slowly than North Korea's path to the bomb. Furthermore, it's worth noting that official US and Israeli intelligence assessments, as well as comments made by senior government officials, have consistently grossly overstated how quickly Iran's nuclear program would advance. For example, in 1992 then-Israeli parliamentarian Benjamin Netanyahu said Iran could produce a nuclear weapon within three to five years. The same year, Israeli Foreign Minister Shimon Peres said Iran would be a nuclear weapon state by 1999.

Similarly, a task force of the House Republican Research Committee predicted in 1992 that "98 percent certainty that Iran already had all (or virtually all) of the components required for two or three operational nuclear weapons." Around the same time, then-CIA Chief Robert Gates said Iran's nuclear program could be a big problem in five years. Far from revising these assessments downward, *The New York Times* carried a report in 1995 that cited unnamed Israeli and US senior officials as saying that "Iran is much closer to producing nuclear weapons than previously thought." Of course, when asked how close Iran was at that time, the officials said about five years.

Source: *The Diplomat*, 10 May 2014.

NUCLEAR STRATEGY

North Korea

N.Korea Testing ICBM Engine, Images Suggest

A US think tank had said on May 2, 2014 that new satellite imagery indicates North Korea has been testing the engine for an ICBM amid concerns the North is also preparing a nuclear test. The US-Korea Institute at Johns Hopkins University said images of the North's main rocket launch site suggested one "and maybe more" tests of what is probably the first stage of a road-mobile KN-08 ICBM. A successful test of such a missile would take the nuclear threat posed by the North to an entirely new level.

With this latest activity, three KN-08 engine test series have been identified for the first and possibly second rocket stages starting in the middle of 2013, the institute said on its website, 38 North. It also said, "as this effort progresses, the next technically logical step in the missile's development would be a flight test of the entire system. ...The Unha-3 stood 30 meters high. The 38 North post said the satellite

images showed the gantry at the Sohae launch site was being modified to take larger rockets of up to 50 meters in height. The signs of engine testing come amid concerns that the North is on the verge of carrying out a fourth nuclear test. Satellite imagery of its main nuclear test site has shown stepped-up activity consistent with preparations for a test.

Source: <http://www.japantimes.co.jp>, 02 May 2014

PAKISTAN

Pakistan Test-Fires Nuclear-Capable Short-Range Missile 'Hatf-III'

Pakistan on May 8, 2014 successfully test-fired a short-range surface-to-surface ballistic missile Hatf III, capable of carrying nuclear and conventional warheads up to a range of 290 kilometres, that could cover parts of India. The "successful training launch" concluded the Field Training Exercise of Strategic Missile Group of Army Strategic Forces Command, the military said in a statement here, 16 days after it conducted the previous test launch of Hatf III, also called the Ghaznavi.

"The successful launch was the culminating point of the Field Training Exercise of Army SFC which was aimed at testing the operational readiness of a Strategic Missile Group besides upgradation of various capabilities of weapon systems," the statement said. The launch was witnessed by the Chief of Army Staff, General Raheel Sharif, Director General Strategic Plans Division, Lieutenant General Zubair Mahmood Hayat and other senior military officials and scientists. Addressing the participating troops in the exercise area, the Gen Sharif appreciated the troops on displaying a very high standard of proficiency in handling and operating these strategic weapon systems. ...

Source: <http://economictimes.indiatimes.com>, 08 May 2014.

RUSSIA

Russia Test-Fires 'Several' Ballistic Missiles

Russia on May 8, 2014 test-launched several ballistic missiles during planned exercises overseen by President Vladimir Putin, news reports said, as a crisis raged in neighbouring Ukraine. The Russian military fired a Topol ICBM from its northern test site in Plesetsk, as well as "several" shorter-range missiles from its submarines in the Northern and Pacific Fleets.

Other military manoeuvres involved the launch from an undisclosed location in western Russia of air-to-surface rockets by Tu-95 strategic bombers, and the

entry into the English Channel of a Northern Fleet armada led by the aircraft carrier Admiral Kuznetsov. The exercises, overseen by Putin and four visiting presidents from Kremlin-allied ex-Soviet states, were staged ahead of Russia's commemoration on May 9, 2014 of the defeat of Nazi Germany in World War II. ...

Source: <https://news.yahoo.com>, 08 May 2014.

Russia Holds Military Drills to Repel Nuclear Strike

President Vladimir Putin has overseen military drills on countering nuclear strike. The planned drills come ahead of the May 9 celebrations dedicated to victory in World War II. *"We are carrying out tests of the readiness of the Russian armed forces. It was announced last November. The exercises will involve all branches of the armed forces across the country,"* Putin told reporters at the Defense Ministry.

Modern challenges and threats to the country's national security demand that the army and the fleet are maintained in readiness for quick and effective retaliation in any conditions, the Russian Defense Minister and army general Sergey Shoigu told Putin in a report. During the drills, it was demonstrated how the missile corps, artillery, aviation and anti-aircraft defenses can be used – for instance, to destroy troops on the ground or to counter massive missile, aviation or nuclear strikes by an enemy.

Plus, it was shown how to inflict a launch-through-attack strike with nuclear missiles. The training exercises, which are due to include ground troops and artillery as well as the air force, were held during a summit of heads of state of a security bloc made up of former Soviet states. Led by Russian President Vladimir Putin, Russian aerospace defense troops have successfully overridden a massive nuclear missile strike, an official representative of the Russian Defense Ministry told RIA Novosti news agency. *At the Priozersk training area (Kazakhstan), a successful interception of a ballistic target by a short-range countermissile was carried out. A massive rocket nuclear strike was repelled by a ballistic missile defense unit of air and missile defense troops,* the representative said.

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The representative also detailed that the combat crews of Armies of Aerospace Defense have discovered and accompanied the ballistic targets with the launch of a short-range interception missile of the Amur complex. *The anti-missile system successfully struck the target that imitated a ballistic rocket,* the representative added.

The strategic weapon carrier Tu-95MC conducted launches of six cruise missiles aiming at targets on the ground in the aviation training area of the Western military district, as part of the drills. The simulated targets were key facilities of military infrastructure of a hypothetical enemy. All the targets were hit as planned, Russia's Defense Ministry confirmed. The presidents of Belarus, Armenia, Kyrgyzstan and Tajikistan observed the drills from the Russian National Defense Command Center. Strategic bomber aircraft and underwater missile carriers of

the Pacific and Northern fleets were involved in the drills. Also, strategic land-based mobile missile systems, as well as the missile corps of the Southern and Central military districts, participated in the tests.

Source: <http://rt.com>, 08 May 2014.

BALLISTIC MISSILE DEFENCE

INDIA

India Successfully Test-Fires Anti-Ballistic Missile

India successfully test-fired an anti-ballistic missile on April 27, 2014 capable of intercepting targets outside the earth's atmosphere, a major step in development of a missile defence system that is available to only a handful of nations. Sharing borders with nuclear armed China and Pakistan, India is developing a two-tier missile defence system that aims to provide a multi-layered shield against ballistic missile attack.... The system is intended to destroy an incoming missile at a higher altitude in the exo-atmosphere, and if that fails in the endo-atmospheric within the earth's atmosphere. ...

Source: <http://www.hindustantimes.com>, 27 April 2014.

TURKEY

Turkey Extends Missile Defense Bids Further

Turkey has extended the validity of bids in a multi-billion dollar missile defense system tender for the second time despite having provisionally awarded the deal to China, a senior Turkish defense official said. Turkey's NATO allies voiced concern when it said in September it had chosen China's FD-2000 missile defence system over rival offers from Franco-Italian Eurosam and US-listed Raytheon Co. It said China offered the most competitive terms and would allow co-production in Turkey.

The official said the bids from Eurosam and Raytheon, which was due to expire on April 30, 2014 would be extended till June, 2014. "Their bids will be valid until June 30," the official said, declining to be named because of the sensitivity of the issue.

Pressure on Private Sector: European and US defense companies have been reportedly pressuring Turkey's defense industry giants to dissuade Turkey from choosing a Chinese firm. Raytheon, Lockheed Martin and Eurosam have been holding talks with C-level executives of local defense companies, like military electronics specialist Aselsan, defense software specialist Havelsan, missile manufacturer Roketsan and TAI, according to information obtained from sources close to the matter.

According to sources, European and American companies, which have billion-dollar joint projects with the Turkish companies at issue, gave an ultimatum to Turkish companies, saying "If Turkey buys missiles from China, our partnerships in certain fields will be over." Foreign companies reportedly also said they would give consent to co-production, which has been one of Turkey's top priorities, but not at the extent that China agreed.

The deal would mark a breakthrough for China in its bid to become a supplier of advanced weapons. But Turkish officials have said for months that it was not a foregone conclusion that Ankara would end up signing the \$3.4 billion deal with CPMIEC. US and NATO officials are unhappy with Turkey's choice of CPMIEC, which is under US sanctions for selling items to Iran, Syria or North Korea that are banned under US laws to curb the proliferation of weapons of mass destruction. ...

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Source: <http://www.hurriyetdailynews.com>, 01 May 2014.

USA

Work on New Missile Defence Satellite Progresses

Lockheed Martin reports it has assembled the propulsion module of a satellite that will

help provide continuous early warning of ballistic missile launches. The module for the fourth SIBRS, GEO was assembled and tested at the company's Mississippi Space & Technology Center and shipped to a facility in California where satellite power and avionics boxes will be added.

"This is a significant production milestone for the fourth GEO satellite and further demonstrates our commitment to delivering SBIRS' unprecedented capabilities to our nation," said Jeffrey Smith, vice president of Lockheed Martin's Overhead Persistent Infrared mission area. "We are now seeing the efficiency benefits from full production on the SBIRS program and look forward to delivering GEO-4 to the US Air Force in 2015."

The SBIRS program delivers missile warning and infrared surveillance information to the president of the United States, the secretary of defense, combatant commanders, the intelligence community and other key decision makers in supporting the country's ballistic missile defense system. SBIRS also aids in intelligence gathering and enhancing battlefield situational awareness for war-fighters

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in enhancing battlefield situational awareness for war-fighters.

The SBIRS program calls for six satellites in geosynchronous Earth orbit. The first satellite received Air Force Space Command Operational Acceptance in May of last year and the second was declared operational in 2013, just eight months after its launch from Cape Canaveral Air Force Station, Fla. Lockheed Martin said the third SBIRS satellite is preparing for acoustic and thermal vacuum testing and is expected to be delivered to the Air Force by the end of 2014. The satellite propulsion module maneuvers the satellite during transfer orbit to its final location and also performs on-orbit repositioning maneuvers.

Source: <http://www.upi.com>, 06 May 2014.

NUCLEAR ENERGY

TAIWAN

Abolishing Nuclear Power Harms Taiwan

Giving up nuclear power would make Taiwan more vulnerable both economically and strategically, the *Wall Street Journal Asia* said in an opinion piece published on May 7, 2014. The newspaper named Taiwan as the exception in East Asia for exacerbating its "own economic and strategic vulnerabilities by abandoning domestic nuclear-power production," pointing out that Japan and South Korea continued to invest in nuclear power even amid voter concerns about safety.

The newspaper said that Taiwan's public aversion to nuclear power seems to be far stronger than Japan's despite the trauma of Japan's 2011 Fukushima meltdown. ... Citing government estimates often contested by anti-nuclear activists in Taiwan, the newspaper pointed out that if Taiwan goes nuclear power free now, it would see a 40% electricity price hike. The nation's state-run utility corporation, Taipower, will go bankrupt if Taiwan's Four Nuclear Power Plant, which is under construction, does not open, the article quoted

Citing government estimates often contested by anti-nuclear activists in Taiwan, the newspaper pointed out that if Taiwan goes nuclear power free now, it would see a 40% electricity price hike. The nation's state-run utility corporation, Taipower, will go bankrupt if Taiwan's Four Nuclear Power Plant, which is under construction, does not open, the article quoted Taipower as saying. "A post-nuclear Taiwan would also be worse-equipped to withstand coercive pressure from China, such as a ban on cross-Strait coal exports or a blockade in the event of war," the newspaper observed.

Taipower as saying. "A post-nuclear Taiwan would also be worse-equipped to withstand coercive pressure from China, such as a ban on cross-Strait coal exports or a blockade in the event of war," the newspaper observed. "The island currently holds about two weeks' worth of strategic energy reserves." "While Tokyo and Seoul are pursuing regulatory reform and a balanced energy mix, Taipei is moving toward increasingly radicalized street politics and nuclear zero. That's risky territory for any nation, let alone one stuck in China's shadow," the article concluded.

Source: <http://www.chinapost.com.tw>, 08 May 2014.

URANIUM PRODUCTION

GENERAL

Uranium Renaissance: Fact or Fiction

It's been well over a year since the uranium market truly started gaining some much-needed attention, and many have high hopes for a "uranium renaissance." Unfortunately, the phrase "uranium renaissance" has been uttered so often that it has begun to feel like a bad joke. The worst part is that the market looks to be the punch line, with spot prices sinking even further than their \$34-per-pound resistance point.

Japanese Reactor Restarts and Prices: One of the remaining catalysts in the uranium market is Japanese reactor restarts. The expectation is that once Japan greenlights its reactors to come online, the excess supply that has been floating around the market for the last few years will finally start to decrease, pushing prices upwards as demand outpaces available supply. But Rob Chang, senior metals and mining analyst at Cantor Fitzgerald, and energy metals analyst Chris Berry say, there is more at play in regards to uranium prices climbing than simply reactors coming back online.

Excess supply, the high cost and lead time of nuclear reactor construction and unease about nuclear

energy are all contributing to the malaise in the market," he told UIN. And while Berry does see prices edging higher in the future, he isn't expecting "explosive or violent moves in uranium" due to the fact that uranium is traded via long-term contracts, "and contract markets typically don't react violently or roar unless there's some sort of a fat tail or black swan event." "I still believe it will be 2016 before we see substantially higher uranium prices," Berry said.

Likewise, Chang said that while Japan is very much a market catalyst, it won't "necessarily be impacting the actual spot market in the short term, but in terms of the markets it probably will provide a bit of a boost." "The market should get a little bit of comfort from the fact that once Japan does announce the reactors are going to be turned on, it should provide a boost, and at least the material that is being sent to Japan or earmarked for Japan, at least some of it will be used."

What about this Secondary Supply?: Anyone who has been watching the uranium market closely knows that it has fallen victim to market oversupply. Chang notes that one of the factors contributing to the overhang is secondary uranium supply; however, the exact amount of secondary supply available on the market is unknown. "At the very least, the utilities think there's a lot out there available, and so far they've been proven to be right, because they can get uranium at cheaper prices right now," he explained. Chang seemed a little skeptical about how much supply is actually on the market.

Referring to a recent uranium conference hosted by Cantor Fitzgerald earlier in April, he said it's possible there could be some "double counting" when it comes to assessing the amount of secondary supply available. Essentially, some industry players are "double counting the impact of tails from underfeeding." However, as he highlighted, the argument there is that some of the tails are not going to be useful in supplying the future as after they've been harvested, they will not have the same high grade that they used to.

Berry, on the other hand, explained that there is "ample potential supply from these sources," but "it all comes at a potential additional cost and these costs vary." Overall, Berry believes that in many cases, mining and processing uranium may be the

cheaper alternative to sourcing supply from secondary supplies of uranium, such as down-blended uranium from nuclear weapons, recycled uranium or re-enriched depleted uranium.

US Selling Stockpiles: While oversupply is definitely at play when it comes to keeping prices down, another concern is the US government selling its uranium stockpiles to cover expenditures. Both Chang and Berry agree that isn't the wisest of decisions – on the one hand, the US is selling its metal stockpiles, and on the other, it's not good for the uranium market. "The US DoE has the authority to sell, or 'bleed' its excess supply into the US domestic market," Berry explained to UIN, adding that based on his calculations, the "DoE has about 25 years of supply and can sell an amount each year that does not exceed 10 percent of average annual domestic demand – approximately 5 million pounds of U3O8."

As Berry pointed out, this is not the first time the US government has sold its critical metal stockpiles. And in the past, selling the stockpiles has led to increased concern about resource dependence. That's a crucial issue considering that domestic production is only about 5 million pounds of uranium and consumption is closer to 50 million pounds. However, as Chang explained, the government needs to watch its budget and will find funds where it can. Unfortunately, as Chang said, selling uranium stockpiles "does hurt the uranium market."

Uranium Prices and Utilities: If one thing is clear it's that the oversupplied market, coupled with lingering stigma relating to the dangers of nuclear power, has not helped the price of uranium in the last several years. Add to that utilities' desire to keep uranium prices low and the "uranium renaissance" seems like a far cry from where investors would like to see things headed. When it comes to utilities and the overall cost of operating a nuclear utility, the price of uranium is small. But more than that, the commodity is actually of more importance to the miners and producers, who as evidenced by the current price climate, cannot economically mine their deposits. Naturally, that raises the question of why utilities would be interested in keeping uranium prices depressed; after all, in the long run, it's really not a beneficial strategy. Berry and Chang both noted that nuclear

utilities are facing competition from all sides when it comes to energy prices. Fossil fuels and renewables (though to a lesser degree) are starting to catch up, forcing utilities to look at their bottom line.

Berry highlighted that fracking has made natural gas "overwhelmingly abundant," which in turn has become "a real problem for nuclear power fleet expansion in the US." He also said that utilities like Exelon are being forced to take a closer look at the "optimal source of electricity generation," adding that because utilities offer a wide array of energy services, "higher input costs can hurt the overall margin of the utility." Echoing Berry's statement, Chang said he doesn't see utilities as having the budget to enter too aggressively into long-term contracts. Moreover, Chang believes utilities need to justify locking into a higher-priced, long-term contract when spot prices are at their lowest in years. While the logic of "why pay more when you don't have to" does make a certain degree of sense, on a longer-term basis, this strategy doesn't seem like a sensible solution for utilities. Lower prices, as mentioned, have stunted the growth and production of uranium across the board. And if prices continue to go lower, or if they stay low for too long, eventually it won't be economic to continue to mine and explore for uranium, which will add some pressure to the market. The again, if the fundamentals are still correct, high demand plus supply shortage, could equal upward pressure on the prices.

What's An Investor to Do?: Analysts and market watchers are clearly hesitant to provide any definite dates for a resurgence in uranium prices, but that does not mean it will never happen. As highlighted above, there are several factors at play in the uranium market that have put downward pressure on prices, yet there are also some catalysts on the horizon – reactor restarts and impending supply shortages – that will act as positive influences on prices. Hopefully, the adage holds true and good things will come to those who wait.

Source: <http://www.u3o8.biz>, 27 April 2014.

NUCLEAR COOPERATION

FRANCE–JAPAN

Nuclear Bond Between France and Japan

Nuclear power policy has been completely revised in Japan since the accident at Fukushima Daiichi, eventually resulting in the conclusion that nuclear would remain an important source for the country. In France a nationwide consultation has taken place on a potential 'energy transition' which is likely to mandate a big increase in renewable energy. What this means for nuclear, which already supplies 75% of electricity with low cost and low environmental impact, remains to be seen when new policies are announced later in 2014.

Despite the uncertainty French President Francois Hollande announced: "We reached agreement, because nuclear energy will remain important for us in the future." He added, "We are committed to Generation IV nuclear reactors." This refers to reactor technology in advance of that widely deployed now at power plants, which would give gains in fuel efficiency, waste management, economics and safety. But despite this technological path being mapped out for nuclear power decades ago, much research remains.

Japanese PM Shinzo Abe named the Astrid project as one area where Japan, through the Japan Atomic Energy Agency, would cooperate with France, through the CEA. The 600 MWe Astrid proto-type would operate from about 2025, with a series of 1500 MWe units to follow. They would be fuelled by depleted uranium and plutonium in mixed-oxide fuel. Two commercial nuclear interests were represented by France's willingness to offer goods and services to Japan in its mission to clean up and decommission Fukushima Daiichi, and that companies from both countries are jointly pitching to build new reactors in Turkey.

A package based on the Atmea1 design, from Areva and Mitsubishi Heavy Industries, is in the late stages

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of negotiation for build at Sinop in Turkey. Apart from the Franco-Japanese design, the plant would be operated by GDF Suez with equity from Itochu. The same design is to be put forward for projects in Vietnam, said Hollande, apparently referring to Vietnam's nuclear power plant project at Vinh Hai, where four units are planned to start in the 2020s.

Decommissioning Joint Venture: During Abe's visit a joint venture company was created between Areva and Japan's Atox to focus on decommissioning and dismantling Japanese nuclear power plants. Areva said it would "provide its know-how and technology in the field of decommissioning while Atox...will adapt the solutions proposed by Areva to the specific needs of Japan." Atox has developed a heavy involvement in work at Fukushima Daiichi on top of its previous business areas of nuclear power plant maintenance, radioactive waste disposal and decommissioning.

Source: <http://www.world-nuclear-news.org>, 06 May 2014.

IRAN-RUSSIA

Russia and Iran Reported in Talks on Energy Deal Worth Billions

The Obama administration's strategy of punishing Russia with economic sanctions over the Ukraine crisis encountered a new complication on April 28, 2014 with word that the Russians are negotiating an \$8 billion to \$10 billion energy deal with Iran, another country ostracized by American-led sanctions, which partly depend on Moscow's cooperation to be effective. The Russia-Iran energy deal, reported by the Iranian state news media, is the second significant economic collaboration under negotiation between the two countries that could undercut the efficacy of the sanctions on Iran. Those sanctions are widely credited with successfully pressuring the Iranians in the current talks over their disputed nuclear program.

Officials at the United States Treasury Department, which enforces economic sanctions against Iran, did not immediately respond to queries about whether the Russia-Iran energy deal would technically

violate those sanctions, which prohibit dealings with a range of Iranian government entities and industries and penalize foreigners who subvert them.

How Much Europe Depends on Russian Energy: Russia supplies about one-third of the oil and gas imported into the European Union, a dependency that complicates efforts to punish Russia's annexation of Crimea. European leaders continue to consider a range of economic sanctions, including measures against the oil and gas industries.

Under the deal, as reported by Iran's Mehr News Agency, the Russians would export 500 megawatts of electricity to Iran and construct new thermal and hydroelectric generating plants and a transmission network. Mehr said terms of the deal were discussed on April 27, 2014 between Hamid Chitchian, Iran's

energy minister, and his Russian counterpart, Alexander Novak, who was on a state visit to Iran. Mehr quoted Mr. Chitchian as emphasizing "the need for further expansion of economic ties between Tehran and Moscow, particularly in the energy and commerce spheres."

The Obama administration has expressed anger about a previously reported negotiation between Iran and Russia, worth an estimated \$20 billion, under which the Iranians would trade 500,000 barrels of oil a day for Russian goods. Administration officials have said such a barter arrangement would violate sanctions on Iran. There has been no indication that the deal is close to completion.

Russia is a member of the so-called P5-plus-1 group of countries – the five permanent members of the United Nations Security Council and Germany – which has been negotiating with Iran for guarantees that its nuclear program is peaceful and not a guise for attaining the ability to make weapons. Under a six-month accord that took effect in January, Iran agreed to freeze most of its nuclear activities in exchange for a modest relaxation of some sanctions, including the release of \$4.2 billion of Iranian money impounded in foreign banks, while negotiators work toward a permanent agreement.

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Most of the sanctions remain in force, including severe limits on Iranian oil sales and prohibitions on Iran's use of international banking networks. Iran and Russia have a long and troubled relationship. During the Second World War, Russian forces occupied half of the country. The other half, the south, was occupied by the British.

Denied access to many Western economic resources after the Iranian revolution of 1979, the authorities in Iran have increasingly turned to Russia, and the Russians have exacted high prices. The most famous Russian business venture in Iran is the Bushehr nuclear power plant, Iran's first and only commercial nuclear reactor. It finally went into operation in 2013 after years of delays and Russian cost increases. It still relies on Russian fuel, which Iran has used as an argument for its own nuclear program.

Militarily the Iranians have also felt victimized by the Russians. Under a contract signed in 2007, Russia was obliged to provide Iran with at least five S-300 advanced missile defense systems, but the Russians never delivered them, contending they were prohibited from doing so by United Nations Security Council sanctions on Iran. Angered, Iran filed a complaint with the International Court of Arbitration in Geneva, where it remains. Many Iranian nationalists are wary about the Russians and their intentions, but Iran's current leaders are feeling increasingly comfortable with President Vladimir V. Putin's anti-American and anti-Western stances.

Source: <http://www.nytimes.com>, 28 April 2014.

VIETNAM-USA

Vietnam, US Sign Nuclear Agreement

Minister of Science and Technology Nguyen Quan and US Ambassador to Viet Nam David Shear inked the accord, called the 123 Agreement. This pact was initiated by Deputy PM and Foreign Minister Pham Binh Minh and the US Secretary of State John Kerry on October 10 2013 as part of the 23rd ASEAN summit in Brunei.

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The 30-year deal will open up great prospects for both countries to expedite specific co-operation projects in radiation application and the development of nuclear power for the socio-economic growth of each country, said Minister Quan. Viet Nam is pursuing nuclear power to deal with its present energy shortage. The hope is that nuclear energy can address more than 10 per cent of the national power demand by 2030.

The agreement takes its inspiration from the spirit of Section 123 of the United States Atomic Energy Act of 1954, titled "Cooperation with Other Nations". It aims to create a legal framework for enhancing co-operation between Vietnam and its US partners in research, training, development and application of nuclear energy, especially in the Southeast Asian

nation. The 30-year deal will open up great prospects for both countries to expedite specific co-operation projects in radiation application and the development of nuclear power for the socio-economic growth of each country, said Minister Quan. Viet Nam is pursuing nuclear power to deal with its present energy shortage. The hope is that nuclear energy can address more than 10 per cent of the national power demand by 2030.

Source: <http://englishnews.thaipbs.or.th>, 08 May 2014.

NUCLEAR PROLIFERATION

IRAN

Nuclear Inspectors to Visit Iranian Sites

On May 4, 2014, Iranian official news agency reported that international nuclear inspectors will visit two sites in Iran in the coming days as an official said that would fulfill a series of demands made by the United Nations nuclear watchdog. The demands by the IAEA, which Iran was required to meet by May 15, 2014 include releasing information about its efforts to develop a type of explosive detonator that can be used in nuclear weapons. A report by Iran's official IRNA news agency quoted Behrouz Kamalvandi, spokesman of Iran's atomic department, as saying the inspectors will visit a uranium mine and a uranium-thickening facility in central Iranian towns of Ardakan and Yazd on May 12 and 13, 2014.

"Following the visit, Iran will be able to say that the seven-agreed measures between Iran and the agency have fulfilled," Kamalvandi said. "Already six steps have been taken." He did not elaborate. His comments refer to an agreement struck

between the UN nuclear watchdog and Iran in February, which included the detonators. The agency mentioned its concerns about detonator development three years ago as part of a list of activities it said could indicate that Tehran had secretly worked on nuclear weapons. The technology had "limited civilian and conventional military applications," it said back then, adding: "given their possible application in a nuclear explosive device.... Iran development of such detonators and equipment is a matter of concern."

The West fears Iran's nuclear program could allow it to build an atomic bomb. Iran denies the charge saying its nuclear program is for peaceful purposes such as power generation and medical research. The other demands included access to nuclear sites and more information about its enrichment process. The inspectors' visit comes as expert-level talks will begin on May 12, 2014 in New York between Iran and representatives from world powers that struck an initial nuclear deal with the Islamic Republic in November, 2013. ...

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On May 4, 2014, Iran's moderate President Hassan Rouhani reiterated his support to the talks with the world powers. He faces increasing pressure from hard-liners within the Islamic Republic who say Iran has made too many concessions in the nuclear talks in return for too little. "We intend to have dialogue with the world to solve our problems," Rouhani said.

Source: <http://www.philstar.com>, 05 May 2014.

Negotiations with Iran Still Face a Major Hurdle

Three months into intense international negotiations over Iran's disputed nuclear development program, Tehran's team has surprised almost everybody with its apparent eagerness for a deal. Iranian negotiators have met all of their commitments under November's interim agreement, have proposed compromises on some key disagreements, and have taken part in three top-level meetings without the squabbles that were common over the last decade of fruitless haggling.

Yet President Hassan Rouhani's government is moving away from the United States and its allies on an issue that may be the most important of all. Put simply, the six world powers want Iran to curtail

enrichment of uranium to limit any bomb-making potential. They want Tehran to cut its 19,000 uranium-enriching centrifuges to a few thousand.

Tehran, however, is insisting on vastly expanding capacity by adding thousands more centrifuges for what it says is strictly civilian energy purposes. With talks scheduled to resume this week in Vienna, the dispute looms as the biggest threat to the comprehensive nuclear deal the two sides are trying to complete by a July 20 deadline. ... Another roadblock also has emerged. Iran's negotiators are demanding that all sanctions be lifted permanently when the deal is signed. The West wants sanctions to be suspended, not revoked, to ensure that they could be quickly clamped back if Iran violated the agreement.

Obama remains cautious about the prospects, saying the likelihood of success is 50-50 at best, White House officials say. The optimists note that Iran has increased cooperation with the United Nations' nuclear watchdog agency, and has become more transparent about current and past nuclear activities. Another hopeful sign

is Tehran appears willing to compromise on a heavy-water research reactor that the West fears could enable Iran to build a plutonium-fueled bomb. Under a proposed compromise, the Arak reactor would be redesigned to limit plutonium production.

...
Source: Paul Richter, <http://www.latimes.com>, 10 May 2014.

NORTH KOREA

South Korea Warns Defiant North that Nuclear-Weapons Program could Threaten Regime's Survival

South Korea's foreign minister warned North Korea on May 6, 2014 that the cost of keeping and testing nuclear weapons will be so high it could threaten the survival of Kim Jong Un's regime. Yun Byung-se told a standing-room audience of diplomats, UN officials and Korea-watchers at the International Peace Institute that the North will pay "the heaviest price" in new sanctions if it defies the international community and goes ahead with a new nuclear test. Many experts – and the South Korean government – had suspected the North would conduct its fourth nuclear test during US President Barack Obama's

recent visit to Seoul. North Korea has said it may go ahead and test a new kind of nuclear device following Obama's visit...

Yun said a new test would make "a great impact on the strategic landscape in our part of the world" and could undermine the Nuclear NPT, the cornerstone of global nuclear disarmament efforts. North Korea has pulled out of the treaty. Faced with this challenge, Yun said South Korea has been making intensive diplomatic efforts to deter the North from carrying out a new test. In the event of a new test, he said, the UNSC must fill all loopholes in the four rounds of sanctions it already has imposed on the North over its nuclear and ballistic missile programs – and individual countries must take similar tough measures.

As long as North Korea relies on nuclear weapons to make threats, Yun said, "then we, South Korea, together with our partners in the Security Council, will make the cost of having these nuclear weapons very very high, very very heavy, so that could backfire to the regime – the survival of the regime." Yun stressed that South Korean is seeking to build a peaceful and "new Korean Peninsula." He reiterated President Park Geun-hye's proposals in April 2014 to reunify Korea, which has been divided along the world's most heavily fortified border since the 1950-53 Korean War. "We hope North Korea will respond positively to our genuine proposals." Yun said South Korea "recognizes that our journey for reunification will be long and bumpy," but he said a nuclear-free and unified Korea would alleviate security threats in northeast Asia and stabilize the region.

"The geopolitical plate of the region is going through what I would call tectonic shifts," he said. "We are witnessing a rising China, a resurgent Japan, an assertive Russia and an anachronistic North Korea which is simultaneously pursuing nuclear weapons and economic development." Yun said conflicts over history, territory and maritime security, among others, are raising concerns "that even a military confrontation owing to

miscalculations may become a reality." At the heart of these conflicts, he said, is "a trust deficit." Yun said that's why South Korea is seeking to unify the two Koreas and build a new Asia and a new world. Yun said he is "rather optimistic about this unification" because there are changes inside North Korea and many changes outside including China and Russia now saying publicly they are in favour of peaceful reunification of the Koreas. ...

Source: <http://www.vancouversun.com>, 06 May 2014.

NUCLEAR DISARMAMENT

CENTRAL ASIA

Central Asian Nations Get Assurances of No Nukes

The world's five nuclear powers today pledged not to use or threaten to use nuclear weapons against five Central Asian nations that have banned nuclear weapons. The United States, Russia, China, Britain and France signed a protocol to the Treaty on a NWFZ in Central Asia at a UN ceremony. It assures the five countries that nuclear weapons won't be used against them. The five countries Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan expressed hope that the protocol will be ratified by the five nuclear-weapon states so it can take effect before next year's review of the 1970 Nuclear NPT aimed at stopping the spread of nuclear arms.

Kazakhstan's UN Ambassador Kairat Abdrakhmanov, speaking on behalf of the five countries, called the signing "a historic event" that will provide Central Asian states "security assurances against the use, or the threat of use, of nuclear weapons." He said the treaty establishing the NWFZ, which came into force in 2009, was the result of the five nations' efforts "to provide security, stability and peace in the region with a view to create the necessary conditions for the development and prosperity of their peoples." Tom Countryman, the US assistant secretary of state for international security and nonproliferation, said today's signing was a "significant step to

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advance nuclear nonproliferation and disarmament.” He said the signing by the five nuclear powers signified their support for the Nuclear NPT and their readiness to offer “firm assurances” against the threat or use of nuclear weapons to states that are part of nuclear-weapons-free-zones. ...

Source: <http://www.business-standard.com>, 07 May 2014.

Iran Urges Nuclear Weapons-Free Middle East

Reza Najafi addressed the meeting of the third session of the Preparatory Committee for the 2015 NPT Review Conference. “A nuclear weapons-free ME was proposed by Iran in 1974 and the General Assembly for a ME free zone emphasized on the proposed plan.” “Annual approval of the plan proves its importance to the world and also NAM, Organization of Islamic Cooperation, and some of other regional and international organizations support the plan,” added Najafi. He also held that without Israel joining the contract there would be no promising future for plan; “therefore, Israel should be forced to join the contract for a nuclear weapon free Middle East.” The PrepCom for the 2015 Review Conference of the NPT will hold its third session from 28 April to 09 May 2014 at the UN Office in New York. This meeting is the third of three sessions that will be held prior to the 2015 Review Conference. ...

Source: <http://en.mehrnews.com>, 03 May 2014.

NUCLEAR TERRORISM

GENERAL

Nuclear Safety from Terrorism is Far More Important than Nuclear Sales

Opponents of nuclear power rightly focus on issues of cost, operational danger and waste disposal, writes David Lowry. But they should not forget the towering ‘elephant in the room’ – nuclear security and the risk of proliferation and terrorist attacks. In late April 2014 over 150 countries began a two week meeting at the UN in New York, preparing for the latest five-yearly review conference of the 190-member state NPT.

The conference will no doubt split between the vast majority of non-nuclear weapons states and the ‘Permanent-Five’ nuclear WMD possessor states – UK, US, France, China and Russia. At issue will be the continual, chronic lack of progress in nuclear disarmament by the nuclear WMD states – indeed, in the case of the USA in particular, its colossal program to modernise its nuclear arsenal. However there is scope for common cause in one area: combatting nuclear terrorism. There’s only one problem here – the nuclear WMD states are themselves among the least secure in their custody of nuclear materials.

Nuclear Power and Nuclear Security: This discussion will put the focus squarely on the 25 states that possess nuclear materials, most of them for civil nuclear programs for the generation of electricity. Despite reassurances that these nuclear materials present little or no proliferation hazard, the reverse is the case. Nuclear security is the ‘elephant in the room’ of the nuclear power debate. The final communiqué of the *Global Nuclear Security Conference* that was held in April 2014 in The Hague insisted that “measures to strengthen nuclear security will

not hamper the rights of States to develop and use nuclear energy for peaceful purposes.” ... There is no question that securing nuclear materials is a grave, sovereign responsibility. At the same time, the threat is global, and all countries must work to reduce that threat. That was the conclusion of the authoritative *Nuclear Threat Initiative, 2014 Report*, published in Washington DC, on 8 Jan 2014.

Source: <http://nuclear-news.net>, 02 May 2014.

NUCLEAR WASTE MANAGEMENT

USA

South Carolina Resists as US Seeks to Shut Down Disposal Site

As the Cold War ended, the United States and Russia agreed to each dispose of 34 tons of plutonium that was produced for use in nuclear weapons, with most of it being turned into fuel for civilian power reactors. Now, 14 years after deciding to build a plant near Aiken, S.C., that would have converted the plutonium into reactor fuel, the Obama

14 years after deciding to build a plant near Aiken, S.C., that would have converted the plutonium into reactor fuel, the Obama administration has proposed to stop work on the site, which has already cost the government \$3.9 billion. But South Carolina, eager to keep 1,600 construction jobs at the site, where much of the plutonium was made in the first place, is suing to keep the work going.

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Mr. MacWilliams, senior adviser to the US energy secretary Ernest Moniz said that finding another way to dispose of the plutonium would probably mean renegotiating an agreement reached with Russia in 2000. A renegotiation would be a difficult task, American officials said, given the deteriorating relationship between the two countries because of the crisis in Ukraine. Cost overruns are a familiar problem for the Energy Department, which often sets out on first-of-a-kind construction projects without a complete design, with cost-plus contracts that give the building companies little incentive to economize and with insufficient appreciation of the technical problems.

If the project is, in fact, abandoned, it will join the Superconducting Super Collider, a particle accelerator in Texas canceled in 1993 after \$2 billion had been spent, and the Clinch River Breeder Reactor, in Oak Ridge, Tenn., canceled in 1984 after \$1.5 billion. At Savannah River in South Carolina, the department spent hundreds of millions of dollars in the early 1990s to prepare to restart three old reactors used to make tritium for nuclear warheads, and then shut them permanently. In the case of the Aiken plant, department officials said, they began pouring concrete before the design was finished and then ordered changes, which drove up the costs. Officials said they had also failed to realize how difficult it was to meet the strict specifications of the NRC.

Compounding the problem is the government's inability to find a buyer for the refined fuel. The technical and financial challenges are so large that no utility company has been willing to sign up to take the fuel, fearful of depending on an unreliable

supplier, Mr. MacWilliams said. Demand for uranium has fallen because many reactors, both in the United States and in other countries, have closed in recent years. In any case, the revenue from fuel sales would never approach the cost of making the fuel. Still, the senators from Georgia, North Carolina and South Carolina, along with Senator Mary L. Landrieu of Louisiana, chairwoman of the Senate energy committee, denounced the shutdown in a letter to

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President Obama, emphasizing that the plant was "the only congressionally authorized disposition path for weapons-grade plutonium." One senator, Lindsey Graham, Republican of South Carolina, called the idea of a cold shutdown irresponsible and reckless. He said it would create problems with Russia "at

a time when we need no more problems with the Russians."

On April 29, 2014 the department said it would continue work until the end of the fiscal year, September 30, 2014. But it said that unless it could get a promise from Congress of continued construction funding at a level of \$500 million to \$600 million a year until 2027, and an understanding that annual operating costs would be in that range once construction was completed, it would proceed with shutting the work down. If the department has to finance construction within its current budget, then other programs, like nuclear weapons work or nonproliferation work, will have to be reduced, officials said. South Carolina sued in March in Federal District Court in Aiken, insisting that the administration had no right to stop work on a project that was

The South Carolina factory was supposed to start with the weapons-grade plutonium, which is in a metal form, dissolve it and chemically transform it into an oxide, the form used by American power reactors. France has been successfully producing such fuel for decades, but the American plutonium is more complex, because the weapons makers alloyed it with another metal, gallium, to stabilize it, and the gallium cannot go into the fuel.

carrying out the plan approved by Congress for disposing of the plutonium.

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makers alloyed it with another metal, gallium, to stabilize it, and the gallium cannot go into the fuel. Skeptics have argued since the late 1990s that this complication might be fatal to the plan, and it now appears that they were at least partly right.

The fuel idea may have closed off other alternatives. Originally, the plan was to take some of the plutonium not suitable for fuel and send it to a different factory nearby, at the government's Savannah River Site, that has been steadily processing high-level radioactive waste by encasing it in glass. The plutonium would have been mixed in, rendering it unrecoverable except by extreme measures. The Bush administration canceled the glass plan to save money. Now the Energy Department is looking at that plan again, because it might be cheaper, but so much of the radioactive waste has already been converted to glass that there is not enough left to mix with the plutonium, experts say.

Source: <http://www.nytimes.com>, 02 May 2014.

NUCLEAR SAFETY

ISRAEL

Nuclear Waste Near Israeli Prisons for Palestinians may be Cause of High Cancer Rate

The high cancer rates may be attributed to nuclear toxic waste which Israel buries near several prisons in the Negev desert, reports IMEMC, quoting the Head of the Census Department at the Palestinian Ministry of Detainees, Abdul-Nasser Ferwana. The agency quotes Ferwana as stating that 53.7 percent of these detainees are held in Be'er As-Sabe (Beersheba) Prison, Ramon, Nafha, and the Negev detention camp. All prisons are located close to the area where Israel buries toxic waste, in the Negev, close to the Israeli Dimona Nuclear Facility, said Ferwana.

Abdul-Nasser Ferwana, a former political prisoner himself, said that many Israeli Environment Ministers have warned Tel Aviv of the dangers

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resulting from Israel's toxic waste and from its nuclear experiments, reported the Egyptian newspaper Oyon Masr. The newspaper quotes Ferwana as saying that those experiments are conducted in areas near the detention camps in the Negev, and that they are likely to be the leading cause of the noticeable increase in cancer, other strange conditions and serious diseases among the Palestinian detainees. ...

Source: <http://nsnbc.me>, 07 May 2014.

TAIWAN

Taiwan to Halt Construction at Fourth Nuclear Power Plant

President Ma Ying-jeou's Kuomintang party says a decision has been made to seal off the plant's first reactor after the completion of safety checks. And construction of the second reactor will be halted immediately. The move is the

latest sign of pressure on Mr Ma's administration from opposition parties and anti-nuclear activists, who are concerned about the safety of such facilities in earthquake-prone regions of Taiwan following the 2011 Fukushima disaster in Japan.

Tens of thousands of protesters gathered in downtown Taipei... urging the government to abandon nuclear energy. The protesters had broken through a police cordon to block one of the busiest streets in Taiwan's capital. On April 25, 2014 Mr Ma refused opposition demands for an immediate referendum on the future of Taiwan's contentious fourth nuclear plant, but reiterated that the government would hold such a vote before the facility starts operations. The fourth plant is located in northern New Taipei City.

According to the economics ministry, Taiwan's three current nuclear power facilities would have to run for longer if the fourth one does not start operating as planned. Taiwan's first nuclear plant is set to be decommissioned from 2018, while the second is set to close between 2021 and 2023.

According to the economics ministry, Taiwan's three current nuclear power facilities would have to run for longer if the fourth one does not start operating as planned. Taiwan's first nuclear plant is set to be decommissioned from 2018, while the second is set to close between 2021 and 2023. The existing nuclear power plants supply about 20 per cent of the nation's electricity. The main

opposition Democratic Progressive Party opposes the facility on safety grounds, while the ruling Kuomintang party says the island will run short of power unless it goes ahead. Taiwan sits near the so-called ring of fire region of seismic activity around the Pacific Ocean.

Source: <http://www.abc.net.au>, 28 April 2014.

UKRAINE

Westinghouse About to Hit Ukraine by Second Chernobyl

The date of April 26, 2014 marks the 28th anniversary of the catastrophic explosion of the 4th reactor at the Chernobyl power plant. This is the time when alarming news is coming to evoke concern over the future of Ukraine's nuclear industry. The use of US-produced fuel for Soviet reactors is not compatible with their design and violates the security requirements. It could lead to disasters comparable with what happened in Chernobyl.

The IUVNEI issued the following statement on April 25, 2014 *Nuclear fuel produced by the US firm Westinghouse does not meet the technical requirements of Soviet-era reactors, and using it could cause an accident on the scale of the Chernobyl disaster, which took place on the 26th April 1986.* The IUVNEI brings together more than 15,000 nuclear industry veterans from Armenia, Bulgaria, Hungary, Finland, the Czech Republic, Russia, Slovakia and Ukraine. It was founded in 2010 and headquartered in Moscow. The Ukrainian state enterprise Energoatom and the Westinghouse Company previously agreed to extend the contract for the supply of US nuclear fuel for Ukrainian nuclear power plants until 2020.

According to Yuri Nedashkovsky, the president of the country's state-owned nuclear utility Energoatom, on April 23, 2014 the Ukraine's interim government ordered to allocate 45, 2 hectares of land for the construction of a nuclear waste storage site within the depopulated exclusion area around the plant of Chernobyl between villages Staraya Krasnitsa, Buryakovka, Chistogalovka and Stechanka in Kiev

Region (the Central Spent Fuel Storage Project for Ukraine's VVER reactors). The fuel is to come from *Khmelnitsky*, Rovno and South Ukraine nuclear power plants. At present used fuel is mostly transported to new dry-storage facility at the Zheleznogorsk Mining and Chemical Factory in the Krasnoyarsk region and storage and reprocessing plant Mayak in the Chelyabinsk region, the both facilities are situated on the territory of Russian Federation. ... Some time ago it was reported that according to covert accords reached between the Ukraine's interim government and its European partners, the nuclear waste coming from the EU member states will be stored in Ukraine. Being in violation of law the deal is kept secret.

Source: *Excerpted from article by Leonid Savin.*
<http://orientalreview.org>, 26 April 2014.

USA

Workers Find Damage to Underground Radioactive Storage Bags at WIPP

Photos taken from re-entry into the underground storage area of the Waste Isolation Pilot Plant in New Mexico showed damage to bags of magnesium oxide. The bags are placed on top of waste containers to prevent the radioactive material from releasing into the environment over a 10,000-year period. The US Department of Energy said it did not know what caused the damage to the bags, but video and eyewitness accounts confirmed there were no issues with the roof or walls in the disposal room. The storage area has been shut down since air monitors detected a radiological release on February 14, 2014. Air samples have been taken from 15 locations since the event, and results after February 18 have shown no contamination.

DOE also said there was progress on the cleanup of the Waste Hoist tower and hoist control area, which was coated with a layer of soot from the February 5, 2014 underground salt haul truck fire. Workers cleaned the fifth floor of the tower and are now concentrating efforts on the third and fourth floors. The hoist is normally used to transport

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waste to the underground facility, but will be used to carry recovery personnel and equipment underground during the recovery effort.

Source: <http://www.power-eng.com>, 02 May 2014.

NUCLEAR WASTE MANAGEMENT

USA

German Nuclear Waste could be Shipped to Savannah River Site

The federal government has entered into an agreement with Germany to evaluate the possibility of accepting shipments of German highly-radioactive nuclear waste at Savannah River Site. The US DOE signed a "statement of intent" with German research agencies offering to evaluate accepting, processing and disposing of waste at SRS. No final decision has been made, according to SRS spokesman Jim Giusti. Giusti told SRS stakeholders, "all potential work to support DOE's evaluation would be funded by the German government so the Statement of Intent is an important step forward."

Germany's challenging dilemma with what to do with its nuclear waste must not become a waste management problem for the Savannah River Site." The graphite-based fuel for the German reactor contains US-origin highly enriched uranium. Returning it to the US would remove it from potential use in a nuclear weapon

Additional shipments of waste at SRS has drawn opposition from environmentalist Tom Clements, director of watchdog group SRS Watch. SRS already has its own challenges disposing of large amounts of high-level waste existing at the facility, he said. "The proposal to import highly radioactive spent fuel from Germany to SRS is simply nuclear dumping dressed up as nuclear non-proliferation," Clements said. "Germany's challenging dilemma with what to do with its nuclear waste must not become a waste management problem for the Savannah River Site." The graphite-based fuel for the German reactor contains US-origin highly enriched uranium. Returning it to the US would remove it from potential use in a nuclear weapon, Giusti said. The energy department will "prepare appropriate analysis and consult with the public" as part of the National Environmental Policy Act before any decisions on accepting the waste are made, Giusti said.

Source: <http://chronicle.augusta.com>, 01 May 2014.



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