

**Unacceptable Risk: Launch-on-Warning Policy**  
Robin Collins, October 1, 2005, Toronto  
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Let me start by making clear my frame of reference. I am a critic of both launch-on-warning policy and deterrence doctrine and I suspect that nuclear weapons abolition will occur when we are willing to replace current nuclear deterrence with an alternative security framework. That conversion may start with a conventional deterrence structure, but should not end there.

Deterrence doctrine is problematic and a significant obstacle for nuclear weapon abolitionists, but launch-on-warning policy can be immediately eliminated. RLOAD (Retaliatory Launch Only After Detonation) is offered here only as a **substitute for launch-on-warning**.

The proposal to eliminate launch-on-warning is directed at a military audience that still believes in nuclear deterrence.<sup>1</sup> Abolitionists are obviously not expected to accept advocacy of a retaliatory nuclear launch in any circumstances, even in response to a real nuclear attack. Abolitionists, however, do need to accept that what is being proposed is safer than launch-on-warning.

### **What is LoW?**

Launch on Warning is a policy adopted for, and really only relevant to, the face-off between the USA and Russia. It is a system whereby “retaliatory” nuclear missiles are launched when there is apparently detection of an incoming nuclear missile attack, but before a detonation confirms the suspect attack is real. A key difficulty with the policy, and one that has been acknowledged by many of its advocates, is that it is possible for a retaliatory launch to take place in response to a false warning.

### **Launch on Warning History**

The option of launch-on-warning was developed in the 1960s but it is not clear at what point it was implemented in the USA and Russia. It became feasible when satellite and other detection technologies were developed and incoming projectiles could be observed and tracked with some confidence. Specifically this was as a result in the USA of the appearance in the late 1950s/early 1960s of Ballistic Missile Early Warning System (BMEWS)<sup>2</sup>, Over The Horizon radar (OTH), the satellite-based electronic warning system in the 1970s (MIDAS) and the Nuclear Detonation Detection System (NUDET). But as well, rockets that were developed around 1960, and propelled with solid fuel, meant that nuclear missiles could be kept fueled and ready for launch. They can today arrive at an enemy target on the other side of the earth in 30 minutes; or, in the case of submarine launched ballistic missiles (SLBM), in 15 minutes or less.

Competing Russian space-based detection system development began in the late 1960s. In 1973 the Cosmos 520 satellite was deployed, but it wasn't until 1977 that an operational early warning system was in place. Most experts believe that the Russian early warning system is currently in serious disarray, and unable to monitor wide swaths of space. According to Pavel Podvig, the Russian early-warning network “is indeed in a serious decline and cannot provide the Russian strategic forces with the support necessary to exercise the launch-on-warning option. In fact, there is virtually no chance that the system will ever recover to be of any use for launch-on-warning.”<sup>3</sup>

### **Current Capacity of Russia and USA**

Both the United States and Soviet Union were (and still are) each capable of launching a massive attack that could devastate the other, and possibly in the process eliminate human life on earth. Several studies in the 1980s suggested that

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<sup>1</sup> Deterrence as doctrine hasn't stood still, but a very current version in the US new draft nuclear doctrine states that the purposes of US nuclear forces include: “(c) Deterring aggression and coercion by deploying forward the capacity to swiftly defeat attacks and imposing severe penalties for aggression on an adversary's military capability and supporting infrastructure. (d) Decisively defeating an adversary if deterrence fails.” See:

[http://www.globalsecurity.org/wmd/library/policy/dod/jp3\\_12fc2.pdf](http://www.globalsecurity.org/wmd/library/policy/dod/jp3_12fc2.pdf) Notes Hans Kristensen in Arms Control Today: “A deterrence posture can also be excessive, with capabilities far beyond what is reasonably needed. Threatening nuclear capabilities may in theory deter potential enemies but may just as well provoke other countries and undercut other vital aspects of U.S. foreign policy. The end result may be decreased security for all.”

[http://www.armscontrol.org/act/2005\\_09/Kristensen.asp](http://www.armscontrol.org/act/2005_09/Kristensen.asp)

<sup>2</sup> <http://www.fas.org/spp/military/program/nssrm/initiatives/bmews.htm>

<sup>3</sup> <http://russianforces.org/podvig/eng/publications/sprn/20030100ps.shtml>  
<http://russianforces.org/podvig/eng/publications/sprn/20030100ps.shtml>

detonation of between 5000 and 6500 Megatons of explosive power would cause nuclear winter. A separate study suggested that as little as 100 MT would cause the same effect if directed at urban areas.<sup>4</sup>

The US currently has about 5000 operational nuclear warheads, their largest missile being the submarine-launched MIRV MK-5, which has 6 warheads with a capacity of nearly half a MT each<sup>5</sup>. Russia currently has about 3800 operational warheads, their largest missile being the Satan SS-18, which has 10 warheads on each missile, with a capacity of up to 3/4 MT each. No other countries currently have the capacity to carry out that kind of massive destruction. During the Cold War it was feared by both the US and USSR that the other side might launch a pre-emptive first strike that could wipe out retaliatory missile capacity. Launch-on-warning was a response to this capability and fear, and while upon inspection it has always been found to be an irrational policy if acted upon, it could accommodate the doctrine of deterrence adopted by both sides. The logic of deterrence is that the threat of a devastating (and therefore unacceptable) retaliation will prevent an attack by an adversary. Indeed (odd logic this), if a massive attack were to take place, the projected retaliation in kind would more than likely result in utter devastation for both sides. Bizarre as it seems, this remains US-Russia policy as far as we know. (More on the debate about current policy, shortly.)

Several well-known individuals and some organizations have shown their displeasure with launch-on-warning, including former missile launch officer Bruce Blair, US Senator Sam Nunn, author Jonathan Schell, the Carnegie Institute, the Mayors for Peace Campaign and many others. Some of those opposed have recommended that the US and Russia de-alert their nuclear missiles – and make re-alerting an elaborate enough process that it makes launch-on-warning impossible. More recently, Alan Phillips and Steve Starr have outlined a proposal that replaces launch-on-warning with RLOAD (Retaliatory Launch Only After Detonation).

### What is RLOAD?

RLOAD is proposed as a replacement for launch-on-warning. It has no ambitions beyond that. A whole range of problems posed by nuclear weapons, their use, the illogic of deterrence and the immorality of nuclear weapon possession are not addressed by RLOAD. RLOAD neither defends nor challenges deterrence; it is neutral to deterrence doctrine.

In a nutshell, RLOAD proposes that neither Russia nor the US should retaliate against a suspected incoming nuclear weapon attack if the occurrence of a first detonation is not confirmed. At that point, states that plan to retaliate could still do so, although nobody is saying here that they should. What is avoided by this change in policy, however, is the elimination of the possibility of a nuclear war caused by a false warning. (It is open to discussion whether RLOAD is also useful in addressing the problem of the unintended launch of a real missile.)<sup>6</sup>

### False Warnings

The false warning resulting from a Norwegian research rocket over Russia in 1995 is an important and fairly well-known example of an incident that could have gone very wrong, and why the shift from LoW to RLOAD should be adopted by both Russia and the USA. In Russia where some may have thought that this could be a first multi-Megaton pre-emptive shot launched by the USA<sup>7</sup>, Russian President Boris Yeltsin was handed the “nuclear briefcase”, which was opened, but ultimately not triggered (as you might have noticed). Decision-making is confined by very acute time pressures and demands a response before anticipated destruction. Yeltsin and his advisors had only about eight minutes to make a decision – the correct decision in this instance.

There are several lessons here from the 1995 Norwegian rocket incident. One is that this event actually led to the opening of the nuclear briefcase, and yet the Cold War had been over for a half decade. Another is that despite all the procedures, sensors and technology in place, the Russians did not know with certainty until it had landed that the projectile was a harmless research rocket and not a nuclear weapon. Nor was the leadership aware that the world had been given prior notice of the rocket launch by the Norwegians. But humans did make the right decision: “retaliation” did not occur, and therefore a nuclear response to that non-retaliation also did not take place.

### How Serious is the Risk of Launch on False Warning?

<sup>4</sup> Leonard Bertin, “Nuclear Winter”, March 1986 CIIPS Background Paper #3.

<sup>5</sup> The US has 384 MK-5 missiles; Russia has 1000 SS-18 missiles. Current data is from the Bulletin of the Atomic Scientists: [http://www.thebulletin.org/nuclear\\_weapons\\_data/](http://www.thebulletin.org/nuclear_weapons_data/), and is compiled by Robert Norris.

<sup>6</sup> Would states at LOW launch a massive retaliation without evidence of a *substantial* incoming attack? Would an attacking state launch only a small proportion of its arsenal, knowing that retaliation would be forthcoming? Notes Russian General Vladimir Dvorkin “No president, no matter what President it is, will ever make a decision about launch-on-warning based on information about one rocket or missile or even...two or three missiles.”

<http://www.pbs.org/wgbh/pages/frontline/shows/russia/closecall/howclose.html>

<sup>7</sup> The missile was an American missile, as Russian detectors would have surmised by the missile trail’s signature.

It is difficult, if not impossible, to calculate the probability of a false warning leading to nuclear war because there are so many unknowns involved.<sup>8</sup> Alan Phillips, Steven Starr and others have put some numbers together showing that even a small probability stretched over many years, can yield an unacceptably high risk. The US no longer provides the public with a summary document or total number of incidents of false warnings – some US legislators have requested that those numbers be made available again, as they were in the 1970s and 80s. The Centre for Defense Information reveals that over the 7 years between 1977 and 1984, 20,784 false warnings occurred, indicating suspected missile attacks on the United States. Of those false warnings, 1000 required a “second look”. Those numbers are far different from the optimistic claims of Lawrence Lynn, U.S. National Security Council staffer, who stated in 1969 that the US satellite early warning system was estimated to produce only one false alarm per year.<sup>9</sup>

Not surprisingly, because of the tendency of leaders to show resolve rather than prudence during emergencies, the risk of a launch from a false warning may be greater during a time of crisis than at a time of peace and cooperation.<sup>10</sup> There are moments in history when the risk from false warning may be the greatest risk of a nuclear weapon launch or of nuclear war. The Norwegian research rocket incident, however, suggests that while this assumption about crisis is probably true, it can only take us so far. Launch-on-warning is unacceptable as policy in any era. Nonetheless, changing LOW to RLOAD is probably easier to do now than when Russia and the USA are at loggerheads. The likelihood of a spontaneous launch to a false warning may or may not be less likely now than during the Cold War, but the probability is not zero. In a recent communication, Bruce Blair comments<sup>11</sup>:

“Of course the level of disbelief in the early warning indicators of a Russian missile attack today would be far greater (presumably) than it would have been during the cold war, and therefore you can argue that while the same LOW procedures would unfold today, the relatively stronger disbelief on the part of the President and his nuclear advisors would tilt the process today more toward waiting for detonations to confirm the electronic sensor warning.”

#### **What About the Claim that the US and Russia are “Not on LOW”**

In a December 1997<sup>12</sup> interview, Robert Bell, then senior director for defense policy and arms control at the National Security Council stated the US directs its “military forces to continue to posture themselves in such a way as to not rely on launch on warning — [and so must] be able to absorb a nuclear strike and still have enough force surviving to constitute credible deterrence.” While retaining the “technical capability” for launch on warning, he continued, “our policy is to confirm that we are under nuclear attack with actual detonations before retaliating.”

Former Deputy Secretary of Defense and Secretary of the US Navy in the early 1960s, Paul Nitze said that the US might be “forced” into LOW if US missiles seemed vulnerable. But LOW was “always contrary to US strategic policy” and was “inexcusably dangerous” during a “time of intense crisis”.<sup>13</sup>

In 2001, Admiral Richard Mies, outgoing commander-in-chief of the U.S. Strategic Command, criticized reductions in the alert status of forces.<sup>14</sup> He challenged the view that US forces were on “hair-trigger” alert, arguing instead that “multiple, stringent procedural and technical safeguards have been in place and will remain in place to guard against accidental or inadvertent launch... Our trigger is built so we can always wait”, he said.

Most commentators challenge these denials and claims by Clinton’s NSC director Bell, Paul Nitze and Admiral Richard Mies. Alexei Arbatov<sup>15</sup>, for instance, in a recent Arms Control Today article (Jan/Feb 2005), proposes that the US and Russia now “seek to abandon the concept of a launch-on-warning or launch-under-attack strike, switching to a concept of delayed second strike.”

In a recent communication<sup>16</sup>, Blair clarifies as well:

“The official policy has always been to provide an option for LOW, [for] launch after initial detonations, and [for]

<sup>8</sup> In the Pugwash 1986 conference report “The Risk of Accidental Nuclear War”, (CIIPS), several probabilities were calculated.

<sup>9</sup> Alan Phillips, No Launch on Warning, at <http://www.web.net/~cnanw/nolaunch.htm>

<sup>10</sup> See for instance Andrea Demchuk, “The Risk of Accidental Nuclear War”, CIIPS Conference Report, 1986.

<sup>11</sup> Personal communication, September 26, 2005.

<sup>12</sup> [http://www.armscontrol.org/act/1997\\_11-12/pdd.asp](http://www.armscontrol.org/act/1997_11-12/pdd.asp)

<sup>13</sup> <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB43/> In 1999 Paul Nitze, one-time hawk and “one of the great hardline Cold Warriors”, wrote an editorial in the New York Times, calling for the abolition of nuclear weapons.

<sup>14</sup> [http://www.armscontrol.org/act/2001\\_09/miessept01.asp](http://www.armscontrol.org/act/2001_09/miessept01.asp)

<sup>15</sup> “Alexei Arbatov is head of the Center for International Security at Moscow’s Institute of World Economy and International Relations, Scholar-in-Residence at the Carnegie Moscow Center, and a member of the Blix Commission on Weapons of Mass Destruction. He previously served as deputy in the lower house of the Russian parliament, the State Duma.”

<sup>16</sup> Personal communication, September 26, 2005.

launch after riding out a full attack. That is to say, the policy seeks to avoid relying solely on LOW. But the reality has been that the U.S. posture has relied heavily on it, and continues to do so, for a variety of reasons including the following two: (1) if the U.S. missile forces ride out an attack, then the surviving weapons could not inflict the [Joint Chiefs of Staff]-required level of damage on Russian forces in retaliation, and (2) the U.S. command-control-communications network has never been considered resilient enough to ride out an attack and constitute itself sufficiently well to direct surviving U.S. nuclear forces to coherent national purposes. So in the end, the reassurances and beliefs of policy advisors such as Bob Bell are disconnected from reality. Our nuclear command system and forces today go through the same exact procedures they went through during the height of the cold war, with rapid reaction drills and decision-making at all levels of the warning and command chain of command, striving mightily to extract a decision on retaliation during the early timeline of LOW...”

We don't know today whether the US detection and response system is more “robust” than it was in the US in the mid 1980s; we do know that the systems in Russia are much less reliable now than they were – according to Pavel Podvig, Russia can no longer count on its early warning system for launch on warning.<sup>17</sup> Some argue that Russia is more reliant on their Perimeter “Dead Hand” launch system.<sup>18</sup> The “dead hand” is triggered after warnings are confirmed by a first detonation, a break in communications and a belief that the leadership has been “decapitated” by a first strike.

Regardless of actual practice, neither the US nor Russia has officially abandoned LOW. As far as we know, both retain it for reasons of deterrence, or strategic “ambiguity”, in continuing anticipation of a nuclear attack from their former Cold War adversary.

### **De-alerting and RLOAD**

The most commonly proposed resolution of the launch-on-warning problem is the implementation of de-alerting procedures. As notes Allan Phillips, de-alerting is “a term commonly used in suggestions and recommendations that nuclear weapons should be taken off ‘hair-trigger alert’ by introducing physical changes to impose an unavoidable delay between a decision to launch and the irrevocable step that actually starts the launch.”

De-alerting could include a series of measures, either separately or in combination, including: •taking launch keys away from missile crews; •inserting re-moveable pins into the missile ignition mechanism; •separating warheads from delivery systems and storing them; •heaping earth and rocks on silo lids; •removing hydraulic fluid from the machines that raise silo lids; •inactivating the mechanism that rolls back garage roofs (Russia); •removing batteries, gyroscopes, or guidance mechanisms from rockets or re-entry vehicles, or •dismantling bomb components and delivery systems, among other measures.<sup>19</sup>

These procedures or others would certainly make launch-on-warning impossible because of the time required to put the missiles back together, or back into firing position. But because all of these measures significantly impact perceived deterrence capability, they need to be monitored and verified<sup>20</sup>, in order to be implemented. Governments require a relatively prolonged process to establish a technical agreement ensuring symmetry between de-alerted militaries. Indeed, as notes Bruce Blair (author of the “zero-alert” proposal), de-alerting is “tantamount to nuclear disarmament”.<sup>21</sup> De-alerting is certainly a key first step along the disarmament path (as acknowledged in the Canberra Commission report)<sup>22</sup>; it is certainly compatible with an end to launch-on-warning policy.

The difference with RLOAD is that RLOAD can be accomplished immediately and will address the risk of launches responding to false warnings, without needing verification, and without impairing deterrence doctrines.

### **Concerns about RLOAD: “It is not verifiable”**

Alan Phillips and Steven Starr argue that it is unnecessary for a switch from LOW to RLOAD to be verified. That may seem to be counterintuitive, but the logic is as follows: The abandonment of launch-on-warning and adopting retaliation-only-after-detonation can never be verified because it is a declarative policy decision recognizing the logic of waiting out a first detonation. By both countries declaring their understanding of the unacceptable risks and their resolving not to respond to false warnings, they will have adopted a confidence-building measure that makes the world an immediately safer place for

<sup>17</sup> See for instance Pavel Podvig, “If It’s Broke, Don’t Fix It” in Bulletin of the Atomic Scientists, July/August 2005, page 21-22 See also <http://russianforces.org/podvig/eng/publications/forces/20050204ponars.shtml> and <http://russianforces.org/podvig/eng/publications/sprn/19940800sgs.shtml>

<sup>18</sup> <http://www.basicint.org/pubs/Research/1999-Y2Kpart4.htm>

<sup>19</sup> See the Gift of Time, Jonathan Schell, page 80-81.

<sup>20</sup> See Podvig and Blair for additional arguments about non-verification of de-alerting.

<sup>21</sup> See Schell’s The Gift of Time, page 81.

<sup>22</sup> [http://www.dfat.gov.au/cc/cc\\_report1.html](http://www.dfat.gov.au/cc/cc_report1.html)

both countries. If a warning is indeed false, the “first detonation” never arrives, and we are all spared a nuclear war. If only one side adopts RLOAD and the other side does not, 50% of the risk of a response to false warning is removed.

Bruce Blair underscores this argument in his contribution to *Repairing the Regime* (2000).<sup>23</sup> “[D]eterrence does not require the ability to launch on warning in any case, and therefore transparency is not essential. To the extent that verification is desired, the declaration would gradually become practical, concrete and transparent as various de-alerting measures such as removing warheads from missiles are instituted.” In other words, when de-alerting becomes possible (and therefore also verifiable), we are very much on the abolition track. At that point neither LOW nor RLOAD would any longer be in the cards as well. Until that point, extracting an agreement to not launch on warning is a useful interim measure. Phillips and Starr go further, arguing that the “attacking side” could never be sure that their adversary had abandoned LOW; for that reason alone a RLOAD “verification agreement is therefore not only unnecessary but actually undesirable”. Uncertainty about one’s adversary’s commitment to RLOAD is less of a burden to bear than is uncertainty over authorizing a launch before a warning is proved false. What we are looking for with RLOAD is a declarative statement by both Russia and the USA, acknowledging that launch-on-warning is unacceptably dangerous and therefore LOW policy will be eliminated from their operational plans.

### **Does RLOAD Threaten Deterrence?<sup>24</sup>**

Phillips and Starr point out that the military’s resistance to giving up LOW and adopting RLOAD may be based upon wrong-headed, but institutionalized assumptions about LOW’s relationship to deterrence. Launch-on-warning has never contributed anything significant to the “stability” advocates of nuclear deterrence claim. Replacing LOW with RLOAD therefore does not radically degrade deterrence so long as an attacker believes that his attack may cause unacceptable retaliation.<sup>25</sup> That requires that some capacity is retained after a first missile strike -- as would still be the case with RLOAD. Any retaliation to a nuclear attack does not have to be perfect to be sufficiently unacceptable to deter. Would the USA attempt to destroy every Russian nuclear missile silo and nuclear-armed submarine if they believed that a single Russian submarine-launched half-megaton warhead might still get through and hit New York City? As Lawrence Freedman points out in *Deterrence* (2004, page 88):

“The only apparent way to win a nuclear war was to eliminate the enemy’s nuclear capability before it could be used. The trouble with this model where nuclear weapons were concerned was that if only a small part of the targeted assets survived and could be launched in retaliation, the consequences could be catastrophic. The nuclear arsenals became so big and the proportions needed to inflict terrible damage so slight that pre-emption simply risked bringing about that which it was supposed to prevent.”

The military’s concern about the impact of electromagnetic pulse (EMP) on land-based missiles has also been challenged. In their paper Phillips and Starr outline how the risk of EMP disruption of nuclear command-and-control centres<sup>26</sup> is minimized by protective shielding and hardening.<sup>27</sup> But in addition, Russia and the USA retain large numbers of submarine-launched ballistic missiles, which are immune to EMP when under seawater. In other words, there is no guarantee that EMP can prevent retaliation.

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<sup>23</sup> *Repairing the Regime* (2000) page 252-256

<sup>24</sup> One US definition of deterrence from the draft new US nuclear posture: “US nuclear forces deter potential adversaries by providing the President the means to respond appropriately to an attack on the US, its friends or allies. US nuclear forces must be capable of, and be seen to be capable of, destroying those critical war-making and war-supporting assets and capabilities that a potential adversary leadership values most and that it would rely on to achieve its own objectives in a post-war world. Thus, US nuclear forces deter potential adversary use of weapons of mass destruction (WMD) and dissuade against a potential adversary’s development of an overwhelming conventional threat.” From “Doctrine for Joint Nuclear Operations”: [http://www.globalsecurity.org/wmd/library/policy/dod/jp3\\_12fc2.pdf](http://www.globalsecurity.org/wmd/library/policy/dod/jp3_12fc2.pdf)

<sup>25</sup> Critics of deterrence argue that far from preventing a nuclear assault, nuclear weapons encourage arms races, instability, conflict escalation, and mistrust. See for example: <http://www.disarmsecure.org/publications/books/rnd.pdf>

<sup>26</sup> This fear was a core justification for adopting launch-on-warning.

<sup>27</sup> See “Empty Threat?” by Nick Schwellenbach, *Bulletin of the Atomic Scientists*, September-October 2005: “Also, Stanley Jakubiak, the senior civilian for nuclear command and control and EMP policy from the Joint Chiefs of Staff, testified that, in the event of an EMP attack, ‘our nuclear command and control system would continue to operate properly...’” For an outline of some of the fears of an EMP attack’s impact on deterrence, see: “Electromagnetic Pulse: The Uncertain Certainty” by Daniel Stein, *Bulletin of the Atomic Scientists*, March 1983. See <http://www.globalsecurity.org/wmd/library/report/1988/CM2.htm>: According to Major M. CaJohn, USMC, “the strategic nuclear forces and the strategic command, control and communications systems received the initial EMP hardening emphasis”.

**Summary**

RLOAD offers a way out of reliance on launch-on-warning. It is a simple policy change that Russia and the USA can adopt immediately, without verification and without significant impact on the deterrence framework. Military policy-makers need to take the RLOAD proposal seriously and assess its merits. Abolitionists should recognize that RLOAD is safer than LOW, and is an interim policy measure that addresses the serious risk of launching nuclear weapons due to false warning.

**Discussion:**

- What are the potential credibility benefits abolitionists can achieve by advocating the RLOAD approach?
- How is the abolition campaign affected by removing the risk of missile launches from a false warning?