

New Terms for a Common Understanding of De-Alerting: Launch Before or After Nuclear Detonation

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The discussion of de-alerting has been complicated by the absence of a common understanding and description of how the United States and the Russian Federation might employ their nuclear arsenals during the initial phases of a nuclear exchange. A resulting lack of universally agreed terminology has hindered diplomatic efforts to lower the operational status of nuclear forces and thus reduce the possibility of accidental, unauthorized or inadvertent use of nuclear weapons.

The authoritative report, *Reframing Nuclear De-Alert* (published in 2009 by the EastWest Institute and sponsored by the governments of Switzerland and New Zealand), made it clear that differences in language and translation, combined with military secrecy, have created a confusion of definitions and terms even among experts. Thus the report made its first objective, ". . . to define the issue to reconcile differing views of the de-alert concept that may themselves hinder attempts to reduce the readiness of nuclear weapons." ¹

Reframing Nuclear De-Alert identified "Otvetno-Vstrechnyi Udar" (OVU), "Launch Under Attack" (LUA) and "Launch On Warning" (LOW) as the central concepts in English and Russian literature on de-alerting. The report and its references list the varying and even opposing definitions commonly used for LOW and LUA, demonstrating that such variation in meaning must be reconciled in order to move beyond semantic debate.²

One solution to this problem is to create new, agreed terminology, which would reduce ambiguity (and thus disagreement) when describing how the U.S. and Russia might respond to a perceived or confirmed nuclear attack. New terms can be realized by utilizing common components of two official U.S. and Russian military definitions (LUA and OVU) which describe the initiation of a retaliatory nuclear strike in response to a first nuclear attack.

LUA was previously defined by the U.S. Department of Defense (DOD) online military dictionary as the "Execution by the President of the Single Integrated Operational Plan forces subsequent to tactical warning of strategic nuclear attack against the United States

¹ *Reframing Nuclear De-Alert*, East-West Institute, Swiss Confederation, New Zealand, 2009. www.ewi.info

² E. Miasnikov, General (Ret.) V. Esin, General (Ret.) V. Koltunov. "Comments on U.S. Discussion Papers: On Definitions in the Discussion of De-Alerting." Presented at EWI's seminar Re-framing De-Alert: Decreasing the Operational Readiness of Nuclear Weapons Systems in the U.S.-Russia, June 21-23, 2009, in Yverdon-les-Bains, Switzerland, http://www.ewi.info/system/files/Comments_Miasnikov_Esin_Koltunov.pdf and W. Slocombe, "De-alerting: Diagnoses, Prescriptions and Side Effects.", Presented at EWI's seminar Re-framing De-Alert: Decreasing the Operational Readiness of Nuclear Weapons Systems in the U.S.-Russia Context. June 21-23, 2009, in Yverdon-les-Bains, Switzerland. <http://www.ewi.info/system/files/Slocombe.pdf>

and *prior to first impact*" [emphasis added].³ The Russian Federation's Strategic Rocket Forces (SRF) also describes the initiation of a retaliatory nuclear strike in response to a (perceived) first nuclear attack. The SRF defines OVU as "a form of responsive measures of Strategic Nuclear Forces ordered after analysis of all reconnaissance and early warning data so that the transmitting of launch orders to a major portion of delivery systems and the launch of those systems are carried out *before the first impact*" [emphasis added].⁴

Note that both military definitions specify that the launch of strategic nuclear forces occurs *prior to or before the attack is confirmed by "first impact"*. The term "first impact" in these definitions means the impact and detonation of one or more nuclear warheads. Thus the U.S. and Russian military both appear to identify an expected imminent nuclear detonation as the pivotal event which drives the launch process.

Most importantly, only nuclear detonation provides unequivocal proof that a nuclear attack (and not a false warning or a conventional attack) has actually occurred. Early Warning Systems (EWS) cannot discriminate between conventional and nuclear warheads while they are still in flight; only the detonation of perceived warheads will reveal if they are conventional or nuclear – or if they exist at all.

Without the final physical evidence provided by nuclear detonation, only the *perception* of the imminent "nuclear" attack exists. Before and until a nuclear detonation takes place, the decision to launch a nuclear strike must be based essentially upon electronic EWS data and other forms of technical and strategic information. Thus such a nuclear strike launched before detonation is essentially responsive and preemptive in nature.⁵

In all these circumstances, the launch of a nuclear strike can be characterized on the basis of *when* it occurs – *before* or *after* the first nuclear detonation confirms that a perceived nuclear attack was indeed underway. This approach (1) allows an observer to simply describe the launch of a nuclear attack as a chain of observable physical events, and (2) separates the launch of nuclear forces into two general classes: **Launch Before Nuclear Detonation** and **Launch After Nuclear Detonation**.

³ In April, 2010, the U.S. DOD removed their previous, long-held definition of LUA (quoted in this article) from their online dictionary. The dictionary now provides no definition for either Launch Under Attack or Launch on Warning.

⁴ E. Miasnikov, et al, "Comments on U.S. Discussion Papers . . .", op. cit., p. 3.

⁵ A preemptive characterization corresponds to the description by a Russian expert of the previously noted SRF definition of OVU as a "retaliatory offensive strike", as described on page 2 of *Reframing Nuclear De-Alert*.

Chronological classification of nuclear attack

Launch Before Nuclear Detonation (LBND or LBD*)

(Launched *before* first impact)

(a) **First-strike**: Unambiguous *First Use* of nuclear weaponry, a *preemptive launch* ordered in the absence of tactical warning of nuclear attack

(b) **Responsive Launch Before Nuclear Detonation (RLBND or RLBD*)**: The *preemptive* launch of a nuclear strike in response to tactical warning of a nuclear attack, but before one or more nuclear detonations provide unequivocal proof that the attack is in fact nuclear.

Launch After Nuclear Detonation (LAND or LAD*)

(Launched *after* first impact)

A nuclear strike ordered in retaliation for a confirmed nuclear attack.

*The word *Nuclear* and the corresponding letter *N* can both be omitted from these terms and acronyms once it is generally understood that *Detonation* refers to *Nuclear Detonation*

Launch Before (Nuclear) Detonation (LBND or LBD)⁶ includes two distinct categories of launch. Both are inherently preemptive and occur before the unequivocal proof of a hostile nuclear attack is obtained through nuclear detonation.

First-strike is the unambiguous *First Use* of nuclear weaponry, ordered in the absence of tactical warning of nuclear attack, although perhaps after a strategic warning of attack.⁷ No apparent disagreement about this term exists, but it is mentioned in order to clarify the sequence of events in relation to the other terms being defined.

Responsive Launch Before (Nuclear) Detonation (RLBND or RLBD) is the preemptive launch of a nuclear strike in response to tactical warning of an incoming nuclear attack, but *before* one or more nuclear detonations (precisely predicted by EWS data) provide unequivocal proof that the perceived attack is in fact a real nuclear attack. RLBD does not imply that political or military leaders *would* utilize a responsive launch

⁶ The word *Nuclear* and the corresponding letter *N* can both be omitted from all the new terms and acronyms once it is generally understood that *Detonation* refers to *Nuclear Detonation*.

⁷ The U.S. DOD defines "strategic warning" as "A warning **prior to the initiation** of a threatening act" [emphasis added], see http://www.dtic.mil/doctrine/dod_dictionary/ and also defines a "tactical warning" as "A warning **after initiation** of a threatening or hostile act based on an evaluation of information from all available sources." [emphasis added], A new definition which has just been added to this earlier definition says, "In satellite and missile surveillance, a notification to operational command centers that a specific threat event is occurring. The component elements that describe threat events are as follows: a. country of origin--Country or countries initiating hostilities; b. event type and size--Identification of the type of event and determination of the size or number of weapons; c. country under attack--Determined by observing trajectory of an object and predicting its impact point; and d. event time--Time the hostile event occurred."

process. However, the *capability* to initiate a RLBD is a primary attribute and function of all operational high-alert, launch-ready nuclear weaponry.

Although RLBD would not likely be intended as a first-strike, it would be made upon the *presumption* that an incoming nuclear attack was underway, but not upon *confirmation of nuclear detonation*. RLBD thus creates the appalling danger that a false warning of nuclear attack might be accepted as true and would trigger a "responsive" nuclear strike that would in fact be a first-strike. High-alert nuclear forces are what make a RLBD possible; de-alerting nuclear forces would preclude RLBD.⁸

RLBD could easily replace the term "Launch on Warning" (LOW). No official military definition exists for LOW, and so no effort would be required to edit or eliminate it from military texts. The absence of a formal definition for LOW has led to a dispute over whether LOW implies an essentially *reflexive* nuclear launch *would* occur upon tactical warning of strategic attack (a fact hotly contested by many in the military).⁹ Thus there probably would be little official objection to the disappearance of LOW from the de-alerting discussion.¹⁰

Launch After (Nuclear) Detonation (LAND or LAD) is a nuclear strike ordered in retaliation for a confirmed nuclear attack. LAD could be used to replace the term "Launch Under Attack". This proposal may at first seem counterintuitive, because the U.S. DOD dictionary has previously defined LUA as occurring "prior to first impact". However, Russian military experts have often used LUA to describe a launch which is carried out *after* the first nuclear detonation confirms an incoming first-strike.¹¹ The current confusion between LUA definitions is a good enough reason in itself to discard LUA – since if consensus is to be reached, one of the LUA definitions must be abandoned.

⁸ The approximately 30 minute flight time of intercontinental ballistic missiles creates the compressed decision-making time that drives the responsive launch process; de-alerting nuclear forces so that they are unable to be launched in less than 30 minutes precludes a responsive launch.

⁹ Arms Control Association, "Text of E-mail from Nov. 28 [2007] Strategic Command responding to ACT's questions on the alert status of U.S. nuclear weapons"; the article states, "U.S. policy is not to rely on a "launch on warning" strategy. U.S. strategic forces are postured to provide maximum flexibility so the U.S. is not faced with a "use or lose" dilemma. A major strike on the U.S. would be required to eliminate the responsive ICBM capability. The ICBM force could be launched prior to impact, but only if the President were to direct such an action. In addition, should the ICBM force not be able to respond, the U.S. SSBNs at sea could deliver an overwhelming response if directed by the President." See http://www.armscontrol.org/interviews/20071204_STRATCOM

¹⁰ Reframing Nuclear De-Alert attempts to separate existing definitions of LOW based upon the idea that some versions of LOW depend upon a "strategic warning" while others rely upon a "tactical warning" of attack (p. 2). However, since all working definitions of LOW describe a situation **after** a launch has already been detected, this seems to be a point of confusion. *Reframing Nuclear De-Alert* also references a definition which states that LOW is ". . . an attack ordered and carried out after early-warning sensors indicate an incoming strike but before enemy missiles hit their targets" (p. 2). However, it is not "missiles" but rather (nuclear) warheads which arrive at their targets during a (nuclear) attack; this definition misses this essential point. All these issues can quickly be resolved when the confirmation of nuclear detonation(s) becomes the defining aspect of deciding whether or not a nuclear attack has occurred.

¹¹ V. Yarynich, *C3: Nuclear Command, Control, Cooperation*, Washington, D.C., Center for Defense Information, 2003, pp. 28 -30. Colonel Yarynich (writing in English) uses LUA to mean the delivery of a retaliatory nuclear strike "in response to an actually delivered strike".

LAD also follows logically from LBD. The universal adoption of a policy of launching only after one or more nuclear detonations have been confirmed would preclude the deadly mistake of launching a responsive or reflexive nuclear strike based upon a false warning.¹² Because technical failure, human error and deliberate sabotage (and some combination of these circumstances) can all cause EWS and nuclear command and control systems to issue false warnings of attack, a launch based upon a false warning would cause an accidental nuclear war.¹³ Adopting a policy of LAD would also prevent the launch of nuclear weapons in reaction to an incoming strike of conventional warheads.¹⁴

The accidental, unauthorized and/or inadvertent launch of a nuclear weapon (or weapons) has previously been considered a "low probability event". New circumstances, however, have raised doubts about the validity of this calculation. For example, deliberate terrorist acts and the effects of cyberwarfare have become variables that make it impossible to calculate odds in this equation of ultimate risk.¹⁵ What is certain, however, is (1) maintaining large arsenals of strategic nuclear weapons at high alert makes it possible for these events to occur, and (2) the risk of such an occurrence is cumulative and that over time the odds increase that nuclear weapons will be used in conflict.¹⁶

Given that the consequences of an accidental launch or a single failure of deterrence could lead to apocalyptic consequences,¹⁷ it is imperative that the general de-alerting discussion should move forward without delay. It is time, therefore, to eliminate outdated and confusing terms that have already slowed the diplomatic process, and replace them with universally agreed terminology which will facilitate debate and mutual understanding.

¹² A. Phillips, S. Starr, "Change Launch on Warning Policy", STAR (Strategic Arms Reduction) website of the Moscow Institute of Physics and Technology, <http://www.armscontrol.ru/pubs/en/change-low.pdf> (English) and <http://www.armscontrol.ru/pubs/change-low-ru.pdf> (Russian)

¹³ A. Phillips, "20 Mishaps that Might Have Started Accidental Nuclear War", Nuclear Age Peace Foundation, January, 1998, http://www.wagingpeace.org/articles/1998/01/00_phillips_20-mishaps.htm and B. Blair, "Increasing Warning and Decision Time ('De-Alerting')", World Security Institute, International Conference on Nuclear Disarmament, Oslo February 26-27, 2008.

¹⁴ A. Phillips, S. Starr, "Replace Launch on Warning Policy with Retaliatory Launch Only After Detonation (RLOAD)", <http://www.worldfederalistscanada.org/rload/ReplaceLoWAug2009.pdf> and www.rload.org

¹⁵ Twenty nations, including North Korea, have developed dedicated computer attack programs which deploy viruses that are designed to disable, confuse and delay nuclear command and control systems, see A. Hebert, "Information Battleground", Air Force Magazine, Vol. 88, No. 12, December 2005.

¹⁶ M. Hellman, "Risk Analysis of Nuclear Deterrence", The Bent of Tau Beta Pi. The Engineering Honor Society, Spring 2008, <http://nuclearrisk.org/paper.pdf>

¹⁷ Starr, Steven, "Deadly Climate Change from Nuclear War: A Threat to Human Existence", December 27, 2009, STAR website of MIPT, <http://www.armscontrol.ru/pubs/en/deadly-climate-change-from-nuclear-war.pdf>

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3. In April, 2010, the U.S. DOD removed their previous, long-held definition of LUA (quoted in this article) from their online dictionary. The dictionary now provides no definition for either Launch Under Attack or Launch on Warning.
4. E. Miasnikov, et al, "Comments on U.S. Discussion Papers . . .", op. cit., p. 3.
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11. V. Yarynich, *C3: Nuclear Command, Control, Cooperation*, Washington, D.C., Center for Defense Information, 2003, pp. 28 -30. Colonel Yarynich (writing in English) uses LUA to mean the delivery of a retaliatory nuclear strike "in response to an actually delivered strike".

12. A. Phillips, S. Starr, "Change Launch on Warning Policy", *STAR (Strategic Arms Reduction)* website of the Moscow Institute of Physics and Technology, <http://www.armscontrol.ru/pubs/en/change-low.pdf> (English) and <http://www.armscontrol.ru/pubs/change-low-ru.pdf> (Russian)

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www.afa.org/magazine/Dec2005/1205info.html

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