

## Nuclear Power and Nuclear Weapons

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### **BREAKING NEWS -- THIS JUST IN:**

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**From:** "Whitlock, Jeremy" <[whitlockj@aecl.ca](mailto:whitlockj@aecl.ca)>

**Subject:** *Reactor Grade Plutonium and Bombs*

**Date:** 31 March, 2014 11:50:18 PM EDT

*"To repeat, Gordon: **the proliferation risk of plutonium in spent fuel has been understood by the nuclear industry and key government departments since the outset of the nuclear industry in Canada, as evidenced by the decades of effort by these two sectors, in cooperation with the IAEA, to protect spent fuel around the world from diversion to a covert nuclear weapons program.**"*

*Cheers,  
Jeremy Whitlock (AECL)*

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Commentary:

Readers of this commentary should peruse the first few paragraphs of the published opinions of Jeremy Whitlock reproduced below, which are completely at odds with the admission quoted above. Talk about hypocrisy!

It is often asserted by nuclear power advocates that the plutonium produced in power reactors is "unsuitable" to be used as a nuclear explosive, because it contains too much of the "higher isotopes" of plutonium. However it turns out that ALL isotopes of plutonium are capable of undergoing a nuclear explosion and that "reactor-grade plutonium" can be used to make nuclear weapons at all levels of technical sophistication, comparable to any other nuclear weapons made with so-called "weapons-grade plutonium". The difference between the two grades of plutonium is mainly a matter of which is most convenient to use, not which is possible to use.

See [http://ccnr.org/Findings\\_plute.html](http://ccnr.org/Findings_plute.html)

It is reassuring to know that Atomic Energy of Canada Limited

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(AECL) is now willing to acknowledge that reactor-grade plutonium poses a significant proliferation risk, and to admit that people in the nuclear industry and government have always recognized this as a serious danger.

To the best of my knowledge, such a frank statement is nowhere to be found on the public web sites of AECL, Ontario Power Generation, the Canadian Nuclear Society, the Canadian Nuclear Association, the Canadian Nuclear Safety Commission, or any other web site of the Canadian nuclear establishment.

Here's what the Canadian Nuclear Society (CNS) has posted on their web site as an answer to school children asking about proliferation risks from reactor-produced plutonium

*"Questions from the O'Kelly School, Shilo, Manitoba About the Nuclear Industry*

*"A power reactor makes not only plutonium-239 which can be used in making nuclear weapons, but also **a whole series of other plutonium isotopes, including Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, and Pu-243. Some of these are very bad for making nuclear bombs. If you don't separate the isotopes and get everything very pure, you can't make a bomb.**"*

*[See <http://tinyurl.com/k8kwe6o>]*

This is not even junk science -- it's a downright lie, passed off as expert knowledge by the CNS. Are we supposed to believe that the nuclear industry people who wrote this answer actually know the truth but are deliberately falsifying it? Or have they become the victims of their own myths?

Six years ago, in a letter to the editor of the Calgary Herald, AECL declared that critics of the industry who try to draw attention to the *"relationship between nuclear reactors and nuclear weapons"* are committing *"serious errors"* based on *"unqualified opinions"* derived from an uncritical reading of *"popular literature"* by people who are *"not expert"*. AECL declared in print that critics are doing a *"significant disservice"* to readers by articulating such opinions.

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In that same letter, **written by Jeremy Whitlock**, AECL took pains to reassure readers that plutonium from a CANDU reactor is not "weapons-grade" but is a completely different "type" of plutonium that is "unattractive for weapons use". In fact if any group or organization were "capable of doing anything remotely menacing" with reactor-grade plutonium, they wouldn't be so stupid as to even try.

Apparently, this is the level of science-based education that AECL considers Canadian citizens are entitled to.

Gordon Edwards, Ph.D.

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### **Just the facts ~ Letter to the Editor**

*by Jeremy Whitlock, Calgary Herald, Sunday, January 27, 2008  
Re. the article: "Nuclear power called 'too risky,'" Jan. 15.*

Your interview with Gordon Edwards contained **serious errors regarding the relationship between nuclear reactors and nuclear weapons.**

It is true that all nuclear power reactors, like Candu, produce plutonium in their cores. **It is incorrect, however, to refer to this plutonium as "weapons-grade."** This term refers to high-purity plutonium produced in special production reactors, not the type found in power reactors like Candu.

The "reactor-grade" plutonium found in Candu used fuel is **unattractive for weapons use** due to the significant difficulties it presents in getting a bomb to work.

These difficulties present enough of a barrier that every country with a nuclear weapons program has pursued either weapons-grade plutonium or highly enriched uranium, instead.

This has little to do with having access to one type of material or the other. **Any organization technically and financially capable of doing anything remotely menacing with reactor-grade plutonium is smart enough to achieve its goals much more simply with weapons-grade material.**

Most international **expert bodies recognize this barrier in reactor-grade plutonium**, supported by more than 60 years of experience since nuclear

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fission knowledge emerged.

The risk that does exist is managed through rigorous international safeguards that monitor the inventory of nuclear material, removing remaining incentives to would-be proliferators. **A significant disservice is done to readers who read unqualified opinions and take them as fact.**

Edwards is not an expert, but a well-read citizen with an opinion based upon popular literature.

Jeremy Whitlock, Chalk River, Ont.

*Jeremy Whitlock is Manager,  
Non-proliferation and Safeguards,  
for Atomic Energy of Canada Ltd.*

*Gordon Edwards' reply, submitted to the Herald but not published:*

### **Half-Truths Are Dangerous**

*By telling only half the truth, Jeremy Whitlock of AECL is misleading Canadian citizens about the proliferation dangers of plutonium produced in power reactors.*

*The International Atomic Energy Agency (IAEA) defines any type of reactor-produced plutonium as weapons-usable material and requires that all plutonium be guarded with the same degree of security.*

*The US National Academy of Sciences stated in 1994 that "It would be quite possible for a potential proliferator to make a nuclear explosive from reactor-grade plutonium using a simple design that would be assured of having a yield in the range of one to a few kilotons, and more using an advanced design. Theft of separated plutonium, whether weapons-grade or reactor-grade, would pose a grave security risk."*

[http://www.ccnr.org/reactor\\_plute.html](http://www.ccnr.org/reactor_plute.html)

*A kiloton-range explosion, equivalent to a few thousand tons of dynamite, can destroy the central core of a city and cause thousands of subsequent deaths due to radioactive fallout.*

*The US Department of Energy reported in 1997 that "Virtually any combination of plutonium isotopes ... can be used to make a nuclear weapon.... In short, reactor-grade plutonium is weapons-usable, whether by unsophisticated proliferators or by advanced nuclear weapon states. Theft of separated plutonium, whether weapons-grade or reactor-grade, would pose a grave security risk."*

<http://www.ccnr.org/plute.html>

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*If criminal or terrorist organizations gain access to reactor-grade plutonium, it is foolish to think they will not use it. The US military exploded a bomb made of reactor grade plutonium back in 1962 to emphasize that very point.*

[http://www.ccnr.org/plute\\_bomb.html](http://www.ccnr.org/plute_bomb.html)

*If Jeremy Whitlock had done his homework he would know that my information is not “opinion based upon popular literature.” I have been qualified as an expert witness on nuclear matters by federal courts in Canada and the USA, by a number of Royal Commissions of Inquiry, by the Canadian Department of Foreign Affairs, and by the US Nuclear Regulatory Agency.*

*For more information on this subject see*

[http://www.ccnr.org/Findings\\_plute.html](http://www.ccnr.org/Findings_plute.html) .

*Gordon Edwards, Ph.D., President,  
Canadian Coalition for Nuclear Responsibility*