

SSI's absurd release limit for tritium enables CNSC to cover up serious accident

by Ole Hendrickson, Ph.D., Concerned Citizens of Renfrew County, April 9, 2012.

When Shield Source Incorporated (SSI) – a Peterborough, Ontario-based manufacturer of tritium lights – applied to the Canadian Nuclear Safety Commission (CNSC) in 2009 for a renewal of its operating license, Dr. Ole Hendrickson of Concerned Citizens of Renfrew County pointed out the absurdity of SSI's "derived release limit" for tritium gas (HT) in the following statement:

"CNSC has currently set the derived release limit for HT from SSI at $3.40\text{E}+19$ Bq/year (3.4×10^{10} GBq/a). *[That's 34 million trillion becquerels per year.]* This is **over 200 times higher than the total global natural tritium production rate, and more than ten times the total world steady state natural inventory of tritium.** *[emphasis added]*

"Each year during the past five years, in theory, SSI could have emitted more than ten times the world's current natural tritium inventory. Had they done so, tritium levels in rainfall, and in every water body in the world, would have risen several hundred-fold, reaching levels exceeding those measured at the peak of nuclear weapons testing in 1963.

"This would have triggered a global health crisis. There would have been a tremendous outcry from scientists, health professionals and civil society around the world.

"This scenario, of course, is impossible. All the reactors in Canada could not produce enough tritium for SSI to do this. The derived release limit is literally absurd.

No responsible regulatory agency would accept such absurd tritium release limits.

But when it comes to tritium – indeed, when it comes to all environmental releases of radionuclides – the CNSC is not a responsible regulatory agency."

The charge that the CNSC is not a responsible regulatory agency was confirmed when the Commission awarded SSI its current 3-year license in July 2009, for the CNSC retained SSI's chosen "Derived Release Limit" in Appendix E of the license.

Why did CNSC act so irresponsibly on tritium “derived release limits” when the problem had been clearly raised during the licensing hearing?

Incorporating absurd release limits in licenses is CNSC’s way of covering up and trivializing radiation releases. This was clearly illustrated when SSI had a large accidental release of tritium gas in February 2010. In a document prepared by CNSC staff for SSI’s January 2011 mid-term hearing, we read the following:

“On February 1, 2010, SSI released 147.25 Terabecquerels (TBq) of tritium gas into the environment due to an accidental release from the Tritium Fill Machine, which exceeded SSI’s weekly action level of 17 Terabecquerels, but is far below the licence release limits of 34 million Terabecquerels per year.”

In making this statement, CNSC staff misled Commissioners and greatly understated the severity of SSI’s February 2010 accident. They failed to tell Commissioners that Appendix E of SSI’s license, in addition to the “derived release limit”, also contains a licenced “release limit”. Under condition 4.1 of its license, SSI “shall not exceed” the licenced limit. During the February 2010 accident (which apparently only lasted about five minutes – CNSC has refused to release details) SSI released 30% of its legal yearly licenced limit for tritium gas.

“Derived release limits” are calculated by licensees themselves – not by the CNSC. SSI’s derived released limit is absurd, and has no legal effect. So why have two so-called “limits” for radioactive emissions from a Canadian nuclear facility?

The answer is simple. The far higher “derived release limits” serve the CNSC and licensees as a useful communications device: a way to assure the public that radiation releases – whether “routine” or accidental” – are of no concern. For years, Canada’s nuclear regulatory agency has used derived release limits in this fashion. Canadian radiation release limits (derived or otherwise) generally greatly exceed those for nuclear facilities of equivalent size in other countries.

Does the CNSC intend to continue its practice of incorporating dual release limits in its licenses – one limit for communications purposes, and another limit for legal purposes?

Unbelievably, the answer appears to be “Yes”. A new draft operating license for SSI, prepared by CNSC staff for the Commission’s May 2, 2012 public hearing on SSI, still includes “derived release limit”, of 34 million trillion Becquerels of tritium per year, unchanged from past licenses.