

## **WHY WE SHOULD JUST SAY “NO TO NUCLEAR FUEL AND FISSION”**

It is true nuclear power has been around for a long time. 1951 saw the first criticality of a Canadian nuclear reactor for power generation. Power generation from nuclear fission is very inexpensive compared to traditional power generation systems such as coal or hydro. But it is the construction, the operation, the refurbishment, and the decommissioning of a nuclear power plant that costs billions of dollars, usually at the tax-payers' expense. It creates toxic pollutants at its fuel source and creates toxic and deadly, long term, radioactive and non-radioactive waste materials in pre and post production of power.

The following are some questions that we should all be considering in order to discern whether or not we should be using nuclear fission for power generation:

What is the impact of mining uranium on the environment and community?

What is the impact of operation of nuclear power plants on the environment and community?

What is the impact of nuclear waste materials on environment and community?

What is the impact of the costs associated with a nuclear power plant in its ability to be competitive and make a profit without direct (or indirect) government subsidies?

My name is Pastor Allan Gairns, a minister in the United Church of Canada in Alberta. I will be approaching the issue of nuclear power from my own faith stance which is affirmed and nurtured in the United Church of Canada. My argument is informed by social justice and peace organizations and partnerships within the wider church community. Many ministers and lay people share my views and beliefs. Other denominations by association, through ecumenical coalitions, may have differences in doctrine, but share a concern for God's creation and humanity's role as part of the created.<sup>i</sup> In his December 31, 2007 message, The Archbishop of Canterbury, Dr. Rowan Williams, stated, "God doesn't do waste!" While, he was talking about waste in general created by a consumerist society, the Archbishop in his video broadcast [YouTube.com] named nuclear waste amongst the many things God doesn't do.<sup>ii</sup>

Seldom have we heard a theological argument for, or against, nuclear power, especially, regarding domestic, nuclear power plants. What does God have to say about nuclear power? Is God in favour of humanity's exploration and use of nuclear fission for power generation? God's response to nuclear questions can be found: in the Bible; in Jesus Christ; and in the order of things on earth and in the cosmos.

Human beings have been around for about 2.5 million years.<sup>iii</sup> But it's only in the last 5000 years that we learned how to take metals out of the ground shape them and use them as tools (or weapons). Think of it, it took millions of years before humanity wrote down a language. I wonder what it must have been like for the first peoples when they discovered how to make and sustain fire for cooking and keeping warm. In a way it must have been as dramatic as harnessing nuclear fission today—our discovery of it was far ahead of the science of understanding what was actually happening.

"Fire" required fuel, then there was burning, then there was the waste. The fuel seemed unlimited, wood was outside the cave door. The burning seemed so magical, the fire seemed to send the wood into the air never to be seen again. The ashes eventually disappeared into the ground. The whole process of fuel, burning and waste, began and remained in the earth's biosphere. Fire is chemical process, a destructive force, that humanity has been able to use as a tool for living, and for the most part we understood ourselves to be in control of fire. Fire has always been a common element and occurrence in the world—it is naturally occurring in the biosphere.

But, nuclear fission is a different matter. It is a physical, chain reaction at an atomic level, created when one element is bombarded by neutrons. Radioactive uranium, which is an unstable element constantly emitting particles, is the fuel for nuclear fission. It requires more scientific knowledge to know first of the existence of the nuclear fuel and then the possibilities regarding its burning in a controlled manner. (And I am not sure whether the word "burning" should be used to describe what happens in a chain reaction.) But the key to understanding uranium and nuclear fission and its relation to humanity is to make sure that we understand its location in the order of the world. And we can state that for the most part, uranium<sup>iv</sup> is not a natural part of the biosphere. The biosphere is comprised of all organic matter on earth and covers the earth like skin on a human body. The

natural laws that sustain a biosphere on earth cannot deal with the radioactive element we call uranium—upon exposure to uranium change happens and it happens at a molecular level to organic matter.<sup>v</sup>

The Earth, some might say GAIA, has been covering up uranium for 4 billion years which allowed the biosphere to evolve the way it has done. When we drill holes in the earth exploring for uranium we expose the biosphere to a dangerous and unstable element. When we mine it either by shaft mining or open pit mining we open a layer of what you might say is the “earth’s skin” up to the most horrible of physical disease and it cannot control it—so the earth’s biosphere remains in a state of brokenness. The fuel for nuclear reactors is highly radioactive affecting at the molecular level any organisms in close proximity. The fission reaction itself is extremely dangerous of course. The waste products, unlike ashes from fire, have to be kept out of the biosphere secured in waste handling facilities or the biosphere will suffer.

And that is exactly what we have experienced with all the spills of mine tailings, heavy water, burst pipes, and other accidents regarding uranium mining, power plants and waste management sties. Nuclear proponents keep telling us that it’s safer now; that the spills and accidents of the past are in the past. The experts say, as they did before the accidents happened that they have learned from the past. Technology, they say, has overcome human limitations and error and made the nuclear industry safer. But, what remains is this: we are exposing our living space that God gave us to elements that will kill it.<sup>vi</sup> We use these elements to create weapons of mass destruction indirectly and directly. The nuclear industry is a fool’s endeavour, for humanity does not know how to make its’ waste products biodegradable or compostable or simply disappear. And that in the end is the only way that it will work in the organic environment we live in today.

Scientists say the Earth has been around for about 4 billion years. In our Bible we have a story that talks about how God ordered all creation. While this story isn’t based on science there are some things about creation (about earth) that our ancestors appreciated and called divinely inspired. One of them is—In nature there seems to be an order of things. The story in Genesis beginning in chapter one depicts just such an order being created over seven days. Day one: “...the earth was a formless void and darkness covered the face of the deep, while a wind from God<sup>2</sup> swept over the face of the waters. <sup>3</sup>Then God said, “Let there be light”; and there was light. <sup>4</sup>And God saw that the light was good; and God separated the light from the darkness. <sup>5</sup>God called the light Day, and the darkness he called Night. And there was evening and there was morning, the first day.”<sup>vii</sup>

Day two: “And God said, “Let there be a dome in the midst of the waters, and let it separate the waters from the waters.” <sup>7</sup>So God made the dome and separated the waters that were under the dome from the waters that were above the dome. And it was so. <sup>8</sup>God called the dome Sky. And there was evening and there was morning, the second day.”

We don’t have to go through all the days. The story is familiar to most of us. God brings forth animals, vegetation, fruits, fish, and every living creature. God sets the moon and sun and stars in their courses. Then God creates human kind and just to show you that we were granted more intelligence than the other species God made, God made us in his own image. Then when everything is done he says that it is good. Then:

“God blessed them, and God said to them, “Be fruitful and multiply, and fill the earth and subdue it; and have **dominion over** the fish of the sea and over the birds of the air and over every living thing that moves upon the earth.” <sup>29</sup>God said, “See, I have given you every plant yielding seed that is upon the face of all the earth, and every tree with seed in its fruit; you shall have them for food. <sup>30</sup>And to every beast of the earth, and to every bird of the air, and to everything that creeps on the earth, everything that has the breath of life, I have given every green plant for food.” And it was so. <sup>31</sup>God saw everything that he had made, and indeed, it was very good. And there was evening and there was morning, the sixth day.

In the church today, at least in the United Church we understand to have “dominion over” means to have **stewardship over**. That God has given the animals, lands and waters to us to look after, but we don’t own them in the same way as we own property. We are like renters and God is the landlord. We are part of God’s Creation and we are given certain gifts that enable us to perform a function of Steward while living among the created.

The connection between us, the earth, the cosmos and the divine is further revealed in the scriptures. In the Book of Proverbs we read, again, about when God created the world and that “Wisdom was God’s consort or  
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agent (Proverbs 8):" The Lord Created me first of all, the first of his works long ago. I was made in the very beginning, at the first, before the world began. I was born before the oceans [22-24a]...I was beside him like an architect[30] Wisdom speaks to us from the scriptures saying that to know Wisdom is to have insight, knowledge, To choose wisdom instead of silver or the finest gold is to choose life. Likewise, in the Gospel of John, we find John telling us that life is found in the one who chooses to know the Word.

John tells the story of the pre-existent Word: "In the beginning was the Word and the Word was with God and the Word was God..." Now, behind the English "Word" in the text lies the Greek notion of the underlying structure of things—the principle by which life is ordered.<sup>viii</sup> John says, "All things were made through him and without him was not anything made that was made. In him was life and the life was the light of humanity." This Wisdom, this Word, is what became visible in Jesus Christ. "And the Word became flesh and dwelt among us, full of grace and truth."<sup>ix</sup>

John speaks of Christ who was there at the very beginning of things. Christ is the divine thread that seems to hold things, the cosmos, together. In Colossians (1: 17), it says, "All things are created in Christ and in Christ all things hold together." The Church proclaims that It is through Christ that we are redeemed, that things are returned to their intended nature. So, through Christ where brokenness exists healing takes place.

The Church as the body of Christ has a responsibility to make sure that its members remember their place in the world and their calling. They are called to follow Jesus, to be as Christ to one another and share God's love with everyone and with creation. By acting as true stewards of creation we show God our love. But many times human activity has led it away from the teachings of wisdom and led it away from the teachings of Jesus the Christ. Mining uranium and nuclear fission for power generation are two activities which have separated us from God and will permanently injure creation endangering life as we know it.

I already know the argument coming back to me and to God. "We mine all kinds of things. Is every mining activity a sin." Well, let's deal with one sin at a time and mining uranium is one of the deadliest of sins. Supposedly we mine uranium for peaceful purposes. We sell it around the world and especially, to our largest trading partner the United States. The United States may use that uranium as fuel for a power plant, but only 10% is used and the 90% that's left over is spent fuel—depleted uranium or DU they call it.

Uranium is the hardest metal in existence and even back in the 1940s the military machine saw its value as weapons material to destroy heavier weapons like tanks.<sup>x</sup> It is depleted uranium they used in the 1970s during the Israeli-Egypt war.<sup>xi</sup> They used Du in the Gulf War, Kosovo, and in the Iraqi war. When a DU weapon explodes on impact its particles enter the ground and the air. The people who live in the places where DU weapons were used are dying of various diseases only associated with exposure to low level radiation over long periods of time. And contrary to what you might be thinking, there are no uranium deposits in the land of Iraq—these illnesses are caused by exposure to DU weaponry and the result of the sale of Canadian uranium from Saskatchewan to United States. In the last 15 years, Saskatchewan's Cameco<sup>xii</sup> production facilities shipped 65,000 tonnes of uranium across the border into the USA.<sup>xiii</sup> Canadian uranium is killing soldiers and innocent women and children, in far off lands even years after the war has ended.

The government, the atomic agencies, and nuclear proponents all lie about the economics and the environmental friendliness of nuclear power.<sup>xiv</sup> First, the fuel is uranium which comes from mines that leave behind them massive tailings waste management problems. Then it's refined, at which time some more wastes are incurred. Then it is shipped to a power plant where it is used as fuel. Then it is removed as spent fuel and either stored in swimming pools on site or shipped to a management facility. All the while the mining, transportation, refining, storing, transportation and then used as depleted uranium or reprocessed again all using fossil fuels and sending carbon emissions into the atmosphere.<sup>xv</sup> And in DU weaponry's case, we are talking about a waste product that cannot be cleaned up because it is so integrated into the battle field—the cities and the farmers' fields—of foreign lands, it can never be isolated and removed.

Through creative accounting, privatization and the blurring of corporate lines, the costs are hard for the average person to realize. But we know that every power plant ever built has gone over estimated costs—double or more.<sup>xvi</sup> We know that plant refurbishments and waste management cost billions of dollars, each on their own. And we know that direct and indirect government subsidies have been flowing into the nuclear industry. At some

point the thought is that nuclear waste will be buried—who pays that bill? And we don't know what will happen after the burial.<sup>xvii</sup> If the nuclear industry didn't receive the breaks and subsidies would it be viable?<sup>xviii</sup> No.

The call to all believers in Christ is to say no to nuclear power: to say no to uranium mining. The results of both are hurting God's creation. We have introduced an unstable, deadly element to our biosphere that has taken billions of years for the earth to keep separate from us and other living creatures. We are killing indiscriminately other human beings and animals through sales of uranium to foreign countries. God's creation is broken and it will take a long time to heal. We do not know what level of air pollution<sup>xix</sup> we have, globally, concerning uranium and its by-products. We have to stop mining uranium, stop selling uranium and stop all nuclear fission for power generation. The nuclear industry is killing us and creation as we know it.

If you believe in Jesus the Christ: if you believe in God who has created and is creating; if you believe that we are the Stewards of the earth for the love of God, then you must say no to your MLAs and MPs. You must say no to the nuclear proponents. You must say no to economists and big business that show us nuclear dreams of abundances and riches for everyone, but only make profits for the few and elite.

You must say no to Nuclear Fuel and Fission for Power.

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<sup>i</sup> Kairos: Canadian Ecumenical Justice Initiatives states: <http://www.kairoscanada.org/e/index.asp>

<sup>ii</sup> Go to You Tube: <http://www.youtube.com/watch?v=D6qGu4vQJFA&feature=user>

<sup>iii</sup> Biology: Concepts and Applications, 4<sup>th</sup> Ed. Cecie Starr, Editor. Brooks/Cole Publisher, NY, 2000.

<sup>iv</sup> Uranium: Uranium, the film, explores the consequences of uranium mining in Canada. Because of toxic and radioactive waste, there are profound, long-term environmental hazards associated with uranium mining. For miners who work at the sites, there is the substantially increased risk of getting cancer. And, because most of the mining to date has been on land historically used by Canada's Native populations, uranium mining violates the traditional economic and spiritual lives of many aboriginal people. Given our limited knowledge of the risks associated with uranium mining, this film questions the validity of its continuation. National Film Board of Canada: 1990, 47 min 59 s

<sup>v</sup> "Mining and milling of radioactive rock is bringing more radiation into the biosphere with significant increases in lung and other forms of cancer. These are all natural phenomenon; water, too, is natural, but when it fills our lungs we drown." (p93, Canada's Deadly Secret, Jim Harding.) Depletion of the ozone, a layer of protection in our atmosphere from solar UV rays, was seen as a serious problem in that radiation from the sun would damage human skin. We should be equally concerned about uranium and exposure to its radiation.

<sup>vi</sup> The global implication of a nuclear accident on the other side of the world became more evident with Chernobyl. 8.4 million people were exposed to radiation. 10,000 people of the clean-up crew have died prematurely and contamination from Chernobyl has reached across Europe to as far away as Sweden and Britain. (p116-117, Canada's Deadly Secret [Nuclear Power is Not the Answer, Helen Caldicott])

<sup>vii</sup> Meeks A. Meeks, Gen.Ed. The Harper Collins Study Bible: New Revised Standard Version, with the Apocryphal/  
Jouette M. Bassler, assoc. Ed. Deuterocanonical Books. San Francisco: HarperCollins, 1993. (p2013)

<sup>viii</sup> Brown Raymond E., Ed. The New Jerome Biblical Commentary. New Jersey: Prentice Hall Inc, 1995. (p951) Jerome Commentary discusses dates around 100CE for the creation of the Gospel of John. "Word not simply a spoken word (like God's words of creation in Gen1), but the *Logos*, in Greek thought the divine principle of reason that gives order to the universe and links the human mind to the mind of God." ( The Harper Collins Study Bible , p. 2013)

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<sup>ix</sup> Mending the World, (<http://www.united-church.ca/partners/interfaith/mtw/foundations>)

<sup>x</sup> Depleted Uranium (DU): since the Manhattan Project (the building of the atomic bomb) 500,000 tonnes of DU has been accumulated in the USA. The exact percentage that is from Canada and Saskatchewan cannot be fully determined...Cameco records show that from 1991, when it became a publicly trading corporation, until 2005, it produced nearly 260 million pounds of uranium. And by 2010, if Cigar Lake comes on stream, it expects to produce 30 million pounds a year." Half of export sales go to the USA which accounts for 65,000 tonnes of uranium leaving Saskatchewan over the border to USA—that only in the last 15 years. (p250-251, Canada's Deadly Secret, Jim Harding)

<sup>xi</sup> "Canada's Deadly Secret," Jim Harding.

<sup>xii</sup> Cameco: the largest uranium mining company with the largest mine in the world operating in Saskatchewan, Canada. Cameco was created back around 1989 from two crown corporations the SMDC and Eldorado, with massive support from taxpayers. Cameco owns 33% interest in Bruce Power Corp. In February 1992, Paul Hanley, an environmental reporter from the Saskatoon Star Phoenix concluded that "the investment by taxpayers was three times as large as the taxes and royalty revenue received, and this excluded many of the indirect costs." (p161, Canada's Deadly Secret, Jim Harding)

<sup>xiii</sup> (p252, Canada's Deadly Secret, Jim Harding)

<sup>xiv</sup> Nuclear and Uranium Spin: The nuclear industry invites governments and educational institutions to work together to make the public have all the facts about nuclear and uranium in order to encourage the appearance of public forum on this issue. But all of their facts come from within the industry itself with no room for critique by objective sources. The Canadian Nuclear Association for example, provided information with certain facts omitted, such as, "waste tailings [at mine sites] are radioactive." "Nowhere is there any mention of over 80% of the radioactivity held in the uranium ore is left in the tailings near the mine sight. Nor is there any mention of the radioactive half-life of some elements in these tailings—for example, that after 76,000 years, one-half of the radioactive thorium will still be in existence in the tailings and will continue to generate highly toxic radium and radon gas." (p196-197, Canada's Deadly secret, Jim Harding)

<sup>xv</sup> Atmosphere: "By implication this was an admission that nuclear energy contributes to greenhouse gases. (When nuclear is self interestedly promoted as a magic bullet for global warming, I point out that all of Saskatchewan's uranium, exported to the USA is enriched by two "dirty" coal-fired plants in Paducah, Kentucky.) (p150, Canada's Deadly Secret.)

<sup>xvi</sup> Costs "have increased more rapidly for nuclear power stations during the past 5 to 10 years, so that earlier clear cost advantage of nuclear over the service life of the plant has been reduced or lost altogether." (p119, Canada's Deadly Secret, Jim Harding)

<sup>xvii</sup> Attempts in the USA to bury spent fuel in a mountain have met with failure. They discovered after construction began an underground water system that would be contaminated by waste materials. The waste build-up in Canada and around the world is enormous. In 1991 a study confirmed the estimated build-up of wastes at Canadian reactor sites at 40,000 tonnes (80 million lbs). (p157, Canada's Deadly Secret)

<sup>xviii</sup> Economic Benefit? The AECL acts like a lobby group. It works with education, provincial and federal governments and business to promote a good vision of nuclear power. They focus on all positive aspects of nuclear power generation and minimize the impact of cost of construction, production and decommissioning of power plants. (p128-9, Canada's Deadly Secret, Jim Harding) And they stay away from the topic of uranium acquisition and selling for weapons use.

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<sup>xix</sup> Air Pollution: as radioactive gasses and particles accumulate in our air what will we do? Will it be too late to do anything by the time we realize that the air pollution we now suffer in cities like Mexico, Los Angeles, Toronto, Montreal, New York, etc., is nothing compared to the deadly, cell altering, contamination of all life around the world that we will suffer in the future?

## **BOOKS, WEB, AND OTHER RESOURCES**

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Nuclear Power in Canada: An Examination of Risks, Impacts and Sustainability

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Depleted Uranium Education Project: <http://www.iacenter.org/depleted/du.htm>

Health Risks of Using Depleted Uranium: [http://www.aeronautics.ru/archive/du-watch/us\\_gov\\_about\\_du.htm](http://www.aeronautics.ru/archive/du-watch/us_gov_about_du.htm)

Nuclear [Fuel] Reprocessing: [http://en.wikipedia.org/wiki/Nuclear\\_reprocessing](http://en.wikipedia.org/wiki/Nuclear_reprocessing)

Plutonium in the Environment: [http://en.wikipedia.org/wiki/Plutonium\\_in\\_the\\_environment](http://en.wikipedia.org/wiki/Plutonium_in_the_environment)

Kairos: Canadian Ecumenical Justice Initiatives <http://www.kairoscanada.org/e/index.asp>

Archbishop of Canterbury's Video Message

<http://www.youtube.com/watch?v=D6qGu4vQJFA&feature=user>

United Church of Canada:

<http://www.united-church.ca/partners/interfaith/mtw/foundations>