

## Nuclear Waste Neutralization Technologies

*In the midst of all the stress and fear around the Japan reactors, where is the mandate for immediate research and development of the neutralization and elimination of radioactive waste? Here are some promising technologies that should be publicized, researched, developed and commercialized as soon as possible. Since they have been demonstrated to government officials and the Department of Energy, it seems curious we hear no mention of any of them or even the idea in mainstream media. And ultimately, nuclear should become eliminated and replaced by free energy devices, an emerging technology sector that Gerald Celente of Trends Research recently predicted will be commercialized in the near future. His prediction will no doubt be catalyzed by our current crisis. We will be covering this abundant clean energy source in an upcoming blog post.*



Here is a copy of Bill C-27 submitted to Canada's Standing Senate Committee on Energy, the Environment and Natural Resources as "An Act respecting the long-term management of nuclear fuel waste". The other report was written by Mark Porringa of Zeropoint Techtonix Inc, 430 Bass Lake Road, R R # 1, Deep River, Ontario K0J 1P0 (613) 584-2960 fax: (613) 584-4616 porringam@aecl.ca . The text of Porringa's brief descriptions of nine alternative, peer-reviewed techniques as candidates for the global clean-up of nuclear waste is copied below.

### Mark Porringa's Advanced Nuclear Waste Decontamination Technologies

The following is a reasonably comprehensive list of potentially effective nuclear waste treatment methods that might be employed to treat the entire range of radioactive wastes that have proven to be such a daunting and horrendously expensive problem for the nuclear industry (in all its forms) with major, long term implications for the environment.

A wide variety of methods will probably be required to accommodate the many different radioactive waste sources including high and low level, solids, liquids and gases. Process names

used here are in some cases just convenient labels used to categorize and set them apart from each other.

Theories on several of these processes are still quite speculative and solid evidence that would pass conventional peer review is still lacking. This is after all a very new field of science.

Some of these technologies are already well protected by international or national patents, with additional US and international patents pending, and further patents may be obtained on new developments as they are made.

### **Brown's Gas-Metal Matrix Process:**

The BG-MMX process utilizes a patented electrolysis cell of the Australian Prof. Yul Brown's design that is said to produce a stoichiometric mixture of monatomic hydrogen and oxygen or possibly a quasi-stable water molecule raised to a high-energy state. This gas has some very peculiar properties including the ability to sublimate tungsten (6000oC) with an implosive flame that burns cool in air with a temperature of only 130oC.

The gas is used to heat a proprietary mixture of metals and/or metal oxides including the radwaste to be neutralized. A highly exothermic radiant reaction appears to result in the immediate reduction of radioactivity approaching 95% of the original levels judging from preliminary tests, within seconds of treatment. The process is conjectured to be effective with high level solid wastes and possibly gasses, but probably not liquids. The high temperatures involved may also preclude the processing of more volatile wastes.

Since 1991, this technology has been successfully demonstrated, on a small scale, at least 50 times to US, Chinese, Japanese and United Kingdom officials on a variety of nuclear waste products including americium, cobalt, uranium, and plutonium. The technique can be applied for the immediate decontamination of stockpiles of nuclear waste materials being held near nuclear power plants. The process is very simple, safe, and inexpensive to develop further into robotics application for on-site treatment with no foreseen environmental effects.

### **Photoremediation:**

The Photoremediation process of the American Dr. Paul Brown is essentially conventional physics, albeit applied in a new and novel way. The process involves the use of a high-energy electron beam impinged on a target which in turn produces a monochromatic gamma radiation that is tuned to induce photofission and photoneutron reactions in the target material causing rapid neutralization of radioactive isotopes. The efficiency claimed exceeds 500% due to the high cross-section reactions in the giant dipole resonance region. The 10 million electron-volt (MeV) electron beam produces typical fission reactions in the 200 MeV range effectively turning high-level solid wastes such as spent fuel into an energy source. The process is apparently intended for on-site treatment with some waste-partitioning required, an aspect which may not be desirable in certain countries.

While this idea is similar in topology to a system being developed by Los Alamos National Labs, Dr. Paul Brown's approach offers several advantages: no need for extensive chemical pre-processing and the energy required to effect transmutation is greatly reduced. No new technology needs to be developed, yet the engineering of such a photon reactor must be completed and it could itself become a practical method for generating power.

### **ZIPP Fusion:**

The ZIPP fusion process, identified by Mark Poringa, induces a wide variety of fusion reactions, resulting from the radial compression of individual diatomic and other simple molecules dissolved or suspended in a light water, carbon arc electrolysis cell. A variety of other cell configurations are envisioned.

The process appears to produce only stable isotopes, which should therefore make it capable of stabilizing a wide variety of radioactive waste materials. The theory on the process draws from condensed charge phenomena, Brown's gas implosion, cavitation bubble collapse and sonoluminescence – all variations of the Casimir effect – which is believed to cohere the zero-point energy of quantum vacuum fluctuations. Transmutations using variations of this basic process may be applicable to a wide variety of nuclear wastes and appears capable of operating with an efficiency exceeding 100%.

A major implication of this process is that the strong force of the nucleus is understood as an ultra close range Casimir effect. Oakridge Nuclear Laboratories in the US in conjunction with several international collaborators have just (this month, in fact) announced a deuterium cold fusion process based on the essential elements of the ZIPP fusion process first reported in 1998. The process is very simple and inexpensive to develop.

### **RIPPLE Fission:**

The RIPPLE fission process is an adaptation of existing potential technology utilizing a supersonic ionized gas to aerosol a counter flow heat exchanger that envelopes the radioactive waste aerosol in a vacuum induced plasma vortex which appears to disrupt the matter stabilizing influence of the quantum vacuum fluctuations resulting in "gentle" low recoil fission reactions which produce only stable fission products, with excess neutrons being prompt converted to protons via quenched beta emissions. The process is apparently proven with conventional non-radioactive wastes and is believed applicable to the entire spectrum of radwaste without the need for waste partitioning. This process is also conjectured to operate with an over-unity efficiency.

### **LENTEC Processes:**

The Low Energy Nuclear Transmutation Electrolytic Cells of the Cincinnati group produce a variety of transmutation reactions using a variety of exotic electrolysis cell designs that generally produce condensed charge clusters composed primarily of up to 1011 electrons each. These electron charge clusters produced with the use of special electrodes can penetrate the nuclei of larger atoms in solution and transmute these atoms into stable elements.

The range of design and operating protocols and potential applications are essentially limitless provided for the waste that is dispersed in the electrolyte. The reported transmutation of thorium to stable titanium and copper by the Cincinnati Group and by the Salt Lake City group is one of the most dramatic examples of this type of treatment process. Application to other high-level liquid transuranic fissionable wastes such as surplus plutonium seems likely. The glaring absence of normal fission yield energies is perplexing but probably explicable as another form of low recoil fission reaction, similar to RIPPLE fission.

### **Plasma Induced/Injected Transmutation – PIT Processes (also known as HDCC):**

Plasma induced/injected transmutation processes run include a gamut from recent achievements dating back to the Oshawa-Kushi cold plasma transmutations reported in 1964. The patented High-Density Charge Cluster (HDCC) process was first discovered by Kenneth Shoulders and added on to by Harold E. Puthoff. Later, the late Stan Gleeson discovered HDCC in properly processed solutions. Still later, Alexander Ilyanok of Belarus discovered HDCC, followed by Vasily Baraboskin in Russia.

The production of condensed charge clusters and various plasma glow discharge phenomena in a variety of gaseous atmospheres is again implicated as the underlying cause with what should be by now an obvious connection with the coherence of zero-point energy from the quantum or stochastic vacuum. Desk-top high energy particle accelerators have also been envisioned, based on the “piggy back” principle, in which the clusters permit acceleration of “piggy-backed” heavier ions to extremely high energies capable of causing fusion and transmutations in target materials including those in solution and the materials of which the electrodes are composed. Brown’s gas implosion and cavitation bubble collapse reactions are also believed to be prevalent in these types of cells due to the prevalence of electrolysis.

A high-density charge cluster technology was discovered and used by Stan Gleeson to stabilize radioactive liquid wastes and has been developed further in the last 4 years by a group led by S-X Jin and Hal Fox. Best results for radioactive liquids have been demonstrated in the processing of thorium for a 30-minute period and achieving a reduction of radioactivity of about 90% from a liquid sample.

### **Kervran Reactions:**

The very compelling evidence compiled by French Nobel candidate Dr. Louis Kervran has identified a wide range of nuclear transmutations in biological systems that have not been adequately explained. Coherence of zero-point energy via Casimir effects within the Somatid particles identified by the Canadian Gaston Naessens is implicated as a possible cause. A wide variety of in vitro and in vivo reactions are believed to be possible as proven in nature and numerous experiments typically involving a reaction medium composed of a dielectric fluid such as water. Highly radiation resistant microorganisms have been found thriving in the core of nuclear reactors indicating the possibility of microorganisms being capable of transmuting some bioactive nuclear wastes in the course of the normal metabolism of such organisms.

### **The Monti Process:**

The Italian Roberto A. Monti's process involves confined explosions involving proprietary mixtures of materials that include radioactive waste. Ignition of such mixtures causes nuclear transmutations resulting in reduced radioactivity (to near-background levels) following combustion, gradually over 1 to 4 days. This technique has been confirmed by the Italian ENEA and is supported by the French CEA scientists as a serious candidate for treatment of waste stockpiles. The system, as currently designed, required waste to be inserted into a chamber.

### **Higher Group Symmetry Electrodynamics:**

Extremely weak, non-classical, higher group symmetry electromagnetic fields were found during a 1991 experiment made by Glen Rein to alter significantly the level of radioactivity in materials, even those in the environment. The experiments suggest that higher group symmetry electrostatics modulate the quantitative and /or qualitative properties of radioactive species. If the non-classical fields directly affect the radioactive species, it is likely that the appropriate field parameters will be discovered to neutralize radioactive emissions. In 1999, a theoretical basis for the phenomenon was developed by the Welsh physicist, M. W. Evans, with the participation of Lt. Col. (retired) Thomas E. Bearden.

The technology is extremely simple and could be applied with minimum logistics for treating massive structures, in-toto outdoors, such as the Chernobyl disaster site.