Comparison of My List of 27 Methods of Neutralizing or Disposing of Radioactive Waste with PACE's 9 Methods

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(Note that this text is also available at http://iiic.de/docs/GVComparison.htm.)

It seems safe to claim that there are at least two dozen different proposed methods of neutralizing or disposing of radioactive waste. Note that the credibility, practicality, safety and accessibility of these methods vary.

1. Theory of an anti-proton source and/or anti-neutron source; Gordon Ziegler.
2. Reversal of the order to disorder arrow in the second law of thermodynamics; Gordon Ziegler (Both of Ziegler's methods require large, high-energy linear accelerator facilities. For 50 million dollars all aging, disease, and decay processes could be reversed in a one-mile radius)
3. Patent on special large containers that have fins. These are put on container ships and sunk 200 feet into the mud at the bottom of the deepest ocean trenches; Dr. M.
4. $50,000 grant from the Canadian Gov. to neutralize radioactive waste using an esoteric technology; Dr. Andrew Michrowski.
5. Patent that describes a relatively inexpensive way of getting rid of radioactive material (or anything, for that matter) *forever*; Purdue University professor.
6. The Hawkings' generator uses simple car battery-powered apparatus to generate a 6 to 8-inch long white spark of *cold* electricity 4 inches in diameter between two brass balls. Substances inserted in the spark reportedly have been observed to sometimes transmute to heavier elements; Ken Hawkings.
7. Collective ion acceleration method has been designed and developed to the point of bench testing in the laboratory. The collective ion accelerator is completely documented, has been submitted to the Department of Energy, and is ready for full laboratory testing, prototype construction and testing. Development phases II and III each needs $2.5 million. Phase IV would involve on-site field testing of a transportable system suitable for remediation of radioactive emissions in both liquid and solid wastes; Salt Lake City, Utah research group led by Chinese plasma physicist Dr. Shang Xian Jin.
8. Simple deep underground burial, e.g., Yucca Mountain, Nevada; U.S. Government.
9. Dematerialization device A using highest powered positive ions ever; Mike Hanson.
10. Dematerialization device B using highest powered positive ions ever; Mike Hanson.
11. Dematerialization device C using highest powered positive ions ever; Mike Hanson.
12. Dematerialization device D using highest powered positive ions ever; Mike Hanson. (Hanson's dematerialization devices transmute any waste into its lowest possible harmless form by passing it through a dematerialization spherical boundary – an extremely active boson field kinetics area of plasmatic surface tension/extreme heat.)
13. Photo-deactivation using gamma rays; Dr. Paul Brown.
14. Implosion machine is an electric arc welder which is modified to duplicate nature's ball lightning; Sonne Ward.
15. Roy transmutation process.

16. According to inventor John Schnurer, Barker's patented method is the easiest, most effective, and least messy method for remediation of radioactive waste. It is dry and reproducible. One shot of only minor energy is required, and then the process self runs. The equipment is simple, off-the-shelf, inexpensive and requires no special skill.
17. Dr. Ronald Gillembardo's method of neutralizing waste. He showed it to the Czechoslovakian government which had been digging their own version of Yucca Mountain, and they stopped digging.
18. Keller catalytic process which is also known as "volcano in a can"; Keller.
19. Transmutation of low-level nuclear waste into a glassy substance by running a super high voltage through it; unknown.
20. 96% reduction of radioactivity by welding with Brown's gas; further reduction is possible by utilizing liquefied Brown's gas; Yul Brown.
21. Combining Brown's gas with bucking magnetic fields inside a plasma ball; Hans Becker.
22. Joe Champion's transmutation method.
23. Searl effect generator-powered anti-gravity spacecraft for one-way trip out of solar system; John Searl.
24. Gravito-magnetic device-powered anti-gravity spacecraft for one-way trip out of solar system; David Hamel.
25. Anti-gravity spacecraft for one-way trip out of solar system; David Burns.
26. Russian process that uses liquid lead bismuth to trigger transforming in the form of neutrons; Anthony Hechanova.
27. Accelerator-driven Transmutation of Waste (ATW) as recently described by Denis E. Beller, Ph.D., of University of Nevada-Las Vegas and Los Alamos National Laboratory.

June 14, 2002, long-time friend, physicist, and email correspondent Andrew Michrowski, Ph.D., emailed me two reports. Dr. Michrowski is with The Planetary Association for Clean Energy, Inc. (in French La Société planétaire pour l'assainissement de l'énergie, inc), 100 Bronson Avenue / Suite 1001, OTTAWA, Ontario K1R 6G8 (613) 236-6265 fax: (613) 235-5876 pacenet@canada.com http://pacenet.homestead.com .

One report 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.

I have compared these nine methods with my list of 27. Some methods in the Canadian list of nine would be additions to my list. The Brown's gas-metal matrix process seems different from the two versions of Brown's gas in my list. I have "96% reduction of radioactivity by welding with Brown's gas; further reduction is possible by utilizing liquefied Brown's gas; Yul Brown", and "combining Brown's gas with bucking magnetic fields inside a plasma ball; Hans Becker".

My list does not include the ZIPP fusion process, RIPPLE fission, Kervran reactions, Monti process, and higher group symmetry electrodynamics.

(Mark Porringa's report follows next.)

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 (6000°C) with an implosive flame that burns cool in air with a temperature of only 130°C.

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 Porringa, 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 sonoluminesence - 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 10^{11} 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 Vasiliy 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" heaver +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 electrodynamics 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.

(End of Mark Porringa's report)

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