T O K E S
Consulting & Associates

Montreal, November 26, 2014

The Honorable Allison M. Macfarlane
Chairman
U.S. Nuclear Regulatory Commission
Mail Stop O- 16G4
Washington, D.C. 20555-0001

Dear Chairman Macfarlane:

In early 2011, when I attended a session of the White House Blue Ribbon Commission on America's Nuclear Future in Washington D.C., I had the pleasure of meeting you following the presentations. I had briefly mentioned that I was working on commercialising an environmentally friendly technology from France that treats and significantly reduces the final waste volume of radioactive liquid waste by using micro-organisms.

The purpose of this letter is that, having recently read about your imminent departure from the NRC in January, I would like to connect with you to bring to your attention our innovative radioactive liquid waste treatment technology and to request your assistance in contacting those experts who may be interested in knowing about this innovative and very promising technology. Our primary goal is to introduce the technology in the United States.

A lot of time-intensive work has gone into the development of the technology since 2011, as I am sure you can imagine, and we have also obtained a second patent.

Our technology would be suitable to treat a wide range of contaminated liquid waste, as follows:

> PRIMARY METHOD – eliminates organic compounds present in radionuclide-contaminated oil and in organic matter contaminated by various chemicals.
>
> SECONDARY METHOD – has been designed to decontaminate oils, greases, solvents, sewage or sludge contaminated with radionuclides with activity in the order of $10^4 - 10^5$ Bq/cm^3.

I am enclosing a brief overview of the process for your perusal. We would be happy to provide further information and present the technology in person upon request.

Thank you very much for your time and any assistance you can offer.

Yours sincerely,

Katherine Tokes

Encl

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NUCLEAR WASTE CAN BE CLEANED NATURALLY

WITH A PROCESS THAT GREATLY REDUCES RADIOACTIVE LIQUID WASTE AND SLUDGE

HIGHLIGHTS OF PROCESS

- Industrial solution for nuclear waste
- A fraction of the expenditure of vitrification or incineration
- Over 97% volume reduction post treatment
- Utilizes a unique patented microbiological process and machine
- The process can stabilize most forms of liquid nuclear waste
- Stabilizes otherwise untreatable stored liquid waste and sludge

ADVANTAGES

- **Greatly increases efficiencies and cost effectiveness of waste treatment**
- On-site treatment of contaminated waste
- Compliant with all regulations on nuclear facilities
- **Eliminates need to transport or incinerate radioactive compounds**
- Unit is portable and can be relocated to different sites in standard shipping containers
- Works at ambient air temperature and pressure
- Is scalable to meet custom needs
- Can treat up to 1, 000 liters of oil or up to 10,000 liters of effluent per day
- Multiple machines can be used for larger applications
- **Significant reductions in final waste volumes**
- **Cost effective:** Eliminates transportation and incineration PLUS large volume reduction of residual dry waste
- **Overall results for client: huge financial savings**

TREATABLE

- All classes of radiation whether Alpha, Beta or Gamma
- Contaminated sludge
- All liquid or aqueous radioactive waste
- A range of oil and aqueous materials contaminated with radionuclides
- Chemical contaminants
- Phenols
- Cresols
- Halogen hydrocarbons
- Naphthalene hydrocarbons
- Chlorophenols
- Pentacholorobiphenyl PCBs
- Benzene
- Ethanol
- Trimethylamine
- Chloroethane
- Cellulose
- Lignin
- Non-ionic surfactants
- Cationic surfactants
- Anionic surfactants
- Methanol
- Ethylene glycol
- Propylene glycol
- Many other organics

THE PROCESSES

*The industrial solution is a three-stage **natural microbiological process** that transforms organic liquid waste into water, carbon dioxide, and an oil-free residue that is dried for normal radioactive waste disposal.*

*Minor chemical adjustments are made to the excess water produced to restore pH balance and maintain the carbonate balance. **The result yields industrial water that is perfectly safe for re-use.***

*This **clean, reliable solution** delivers a final volume of liquid radioactive waste representing more than **97% reduction of the original waste volume**. Liquid waste is dried to a fine powder for easier and more cost-effective disposal.*

***OUR PRIMARY METHOD** **eliminates organic compounds** present in radionuclide-contaminated oil and in organic matter contaminated by various chemicals.*

OUR SECONDARY METHOD** has been designed to **decontaminate oils, greases, solvents, sewage or sludge contaminated with radionuclides with activity in the order of $10^4 - 10^6$ Bq/cm^3.

*After treatment and drying, the **total amount of dry residue** for disposal is **between 0.16 and 0.3% of the original amount, by weight**; the final volume is approximately **300 to 600 x less than the original volume** of oil, solvents or sludge (much less than other processes).*

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CHAIRMAN Resource

From: Katherine Tokes <katherine@tokesconsulting.com>
Sent: Wednesday, November 26, 2014 2:25 PM
To: CHAIRMAN Resource
Subject: Radioactive liquid waste and sludge treatment technology - follow up
Attachments: Letter _Allison Macfarlane NRC 26 Nov 2014.pdf; Radioactive Liquid Waste Treatment_Exec_Summary_NOV 2014.pdf

Importance: High

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In the attached please find a letter addressed to your attention and a brief overview of the technology.

Thank you for your time and consideration.

Yours sincerely,

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