

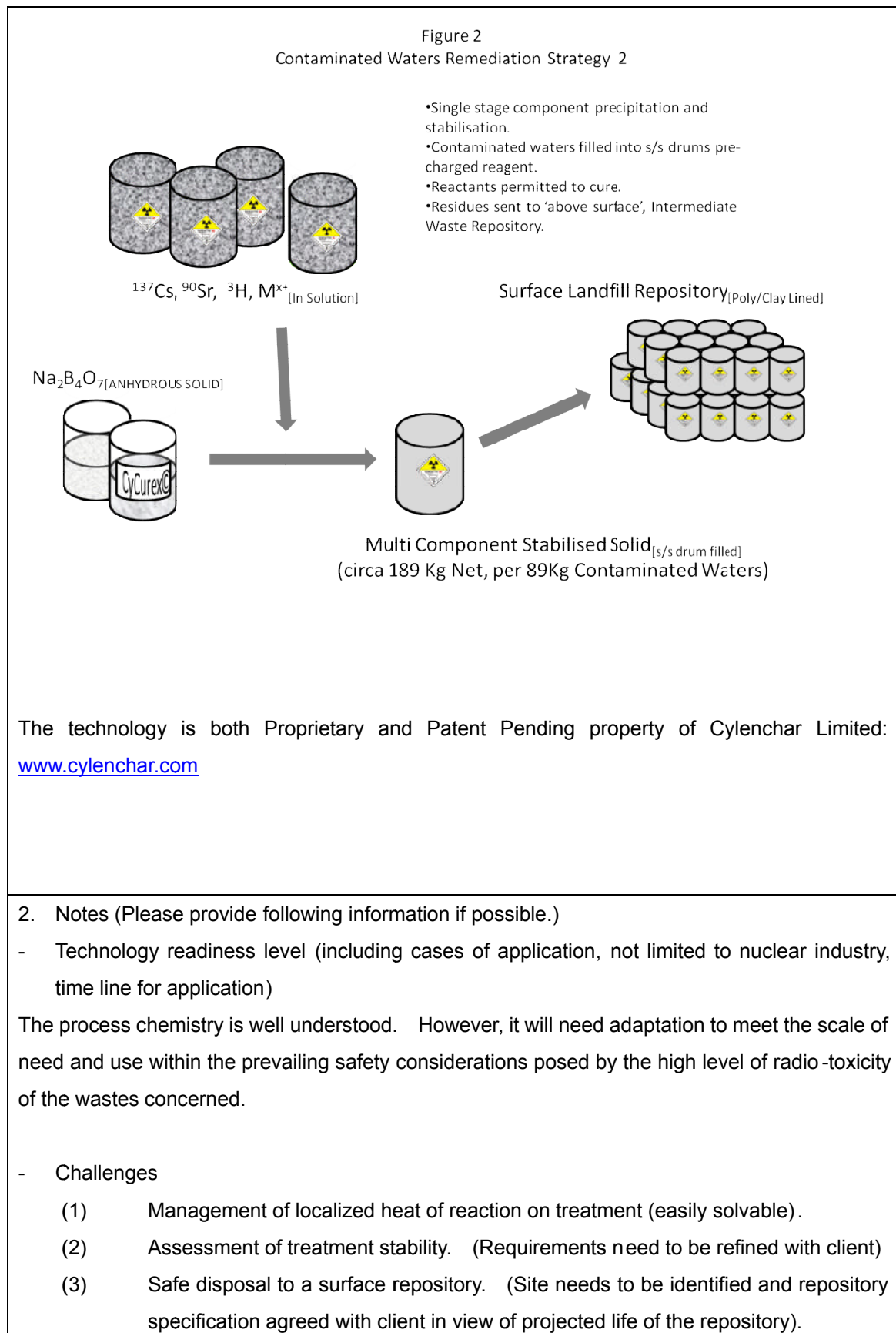


[Form 2 (to be reported to Committee on Countermeasures for Contaminated Water Treatment and to be disclosed to public)]

Technology Information	
Area	(5) Treatment of contaminated water (Tritium, etc.) <input type="checkbox"/> (Select the number from "Areas of Technologies Requested")
Title	Immobilization of Group II, and Group III radio-nucleotide pollutants and tritiated water using Cylenchar Technology.
Submitted by	Dr Peter J. Hurley, BSc(hons), PhD, MBA, CSci, CChem, MRSC, CEnv, C.WEM, MCIWEM, Cylenchar Limited
1. Overview of Technologies (features, specification, functions, owners, etc.)	
<p style="text-align: center;">Figure 1 Contaminated Waters Remediation Strategy 1</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><math>^{137}\text{Cs}, ^{90}\text{Sr}, ^3\text{HOH}, *M^{x+}</math> [IN SOLUTION]</p>  <p style="text-align: center;">↓ CyCurex©</p> <p><math>^{137}\text{Cs}, ^{90}\text{Sr}, ^3\text{HOH}</math> [INSOLUTION]</p> <p><math>*M_{x}</math> [SOLID]</p> <p>NB: <math>*M^{x+}</math> = Radio-nucleotide metals of Periodic table Group III and above</p> <p style="text-align: center;">↓ <math>\text{Na}_2\text{B}_4\text{O}_5(\text{OH})_4</math> [SOLUTION]</p> <p><math>^{90}\text{Sr}_2\text{B}_4\text{O}_7 \cdot 6\text{H}_2\text{O}</math> [SOLID]  <math>^{137}\text{Cs}_2\text{B}_4\text{O}_7 \cdot 6\text{H}_2\text{O}</math> [SOLID]</p> <p>NB: All Periodic table Group II metals precipitated</p> <p style="text-align: center;">↓ <math>^3\text{HOH}</math> [IN SOLUTION]</p> <p style="text-align: center;">↓ <math>\text{Na}_2\text{B}_4\text{O}_7</math> [ANHYDROUS SOLID]</p> <p><math>\text{Na}_2\text{B}_4\text{O}_7 \cdot 10^3\text{HOH}</math> [SOLID]</p>  <p>NB: Periodic table Group I metals precipitated  <math>^3\text{HOH}</math> retained as water of crystallisation.            Stable to 60.8°C</p> </div> <div style="width: 45%;"> <ul style="list-style-type: none"> <li>•Multistage component precipitation and stabilisation.</li> <li>•Contaminated waters filled into s/s drums pre-charged reagent.</li> <li>•Reactants permitted to cure.</li> </ul> </div> </div>	



- Opportunities
- (4) The technology has the capability to be extrapolated to address the removal of Cs137 and Sr 90 and other heavy metals radio-nucleotides from the seawater in the harbor.
- Others (referential information on patent if any)

**【Areas of Technologies Requested】**

- (4) Accumulation of contaminated water (Storage Tanks, etc.)
- (5) Treatment of contaminated water (Tritium, etc.)
- (6) Removal of radioactive materials from the seawater in the harbor
- (7) Management of contaminated water inside the buildings
- (8) Management measures to block groundwater from flowing into the site
- (9) Understanding the groundwater flow