

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

| Technology Information | |
|---|--|
| Area | (8) Management measures to block groundwater from flowing into the site <input type="checkbox"/> (Select the number from "Areas of Technologies Requested") |
| Title | Strategy and method for alleviation of groundwater ingress into basement of damaged buildings. |
| Submitted by | Dr Peter J. Hurley, BSc(hons), PhD, MBA, CSci, CChem, MRSC, CEnv, C.WEM, MCIWEM, of Cylenchar Limited and Leon Stanger BSc(hons), CEng, MICE, FGS, Dip. Geot. Eng., of Beech Group Limited |
| 1. Overview of Technologies (features, specification, functions, owners, etc.) | |
| <p style="text-align: center;">Proposed Alleviative / Remediation Design for Ground Waters</p> <p style="text-align: center;">Inner Zone Jet Grouted 'Soft' Dam</p> <p style="text-align: center;">Outer Zone Jet Grouted 'Soft' Dam</p> <p style="text-align: center;">Impermeable Mudstone/Clay Strata</p> <ul style="list-style-type: none"> •Insert subsurface dam to reduce water transit into the basement of damaged structures •Upstream soft dam through sandstone aquifer to the mudstone/clay impermeable strata – to intercept waters from possible preferential pathway. •Inner zone 'soft dam' - encircling dam (around vulnerable buildings) •The system, has the advantage of mitigating groundwater ingress whilst avoiding complications of ground heave and aquifer disintegration that would result from an ice-barrier. <p>Copyright© 2013</p> | |
| <p>The 'soft dam' technology is both proprietary in nature and the property of Beech Group Limited www.beech-group.co.uk</p> | |

2. Notes (Please provide following information if possible.)

- Technology readiness level (including cases of application, not limited to nuclear industry, time line for application)

The process chemistry is well understood. However, it will need adaptation to meet the scale of need and use within the prevailing safety considerations posed by the high level of radio-toxicity of the wastes concerned.

- Challenges

- (1) To optimize the soft dam formulation for maximum efficacy in reducing the permeability of the sandstone aquifer.

- Opportunities

- (2) Reduces the need for costly and hazardous implementation of an ice dam
- (3) Significantly reduced O and M costs.
- (4) No consequential ground heave or aquifer fragmentation.

- Others (referential information on patent if any)

【Areas of Technologies Requested】

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