

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

Technology Information	
Area	5 (Select the number from "Areas of Technologies Requested")
Title	Managed Wide Scale Groundwater Bypass System
Submitted by	The SimplyInfo.org Research Team
<p>1. Overview of Technologies (features, specification, functions, owners, etc.)</p> <p>This wide scale groundwater bypass system would take plant wide terrain and contamination problems at Fukushima Daiichi into account. The system utilizes the plateau drop in the geography and a nearby stream as boundary areas to create a network of controllable bypass wells and a sealed water diversion system. (see attached document for diagrams)</p> <p>This would allow the diversion of uncontaminated groundwater before it reaches the plant grounds. Such a system will allow for direct diversion to the sea of water at acceptable levels without requiring dilution. Groundwater at these locations should be uncontaminated or minimally contaminated where if any filtration is required, simple media bed filtration should suffice.</p> <p>This system is superior to the current attempt by TEPCO as it creates the control of incoming groundwater by manipulating the wide scale groundwater well system. This will allow engineers to adjust the groundwater entering the site to avoid any unforeseen consequences such as ground subsidence. The system avoids the contamination problem found in the TEPCO system due to it being sited close to the reactors within the plant grounds. Combined with the already under construction port wall and sea front soil solidification, the wide scale groundwater bypass should give considerable control over the groundwater at the plant.</p> <p>Please see the attachment for specifications, details of the functions of the system and diagrams.</p> <p>Owners: SimplyInfo.org is the "owner" of the intellectual property of the concept. All equipment suggested to complete the project are based on capability or adherence to technical standards. "Like for like" equipment could be exchanged to suit availability in Japan. Brands of equipment suggested are to clarify the concept. We have no affiliations of any type with the brands or companies used as representative suggestions.</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 concept relies on existing common technology and equipment, lowering the time needed to implement the project. This strategy will also keep costs down. Groundwater management control systems including relief wells, sump pumps, wells and water cut-off tactics have been used in large scale construction projects for many years. This technology has also been used for permanent water management for certain public structures and buildings that need ongoing water management. Many large tunnel projects require long term use of this technology. The Fleet Center in Boston required a permanent groundwater management system due to the geology of the area.

A project such as the Wide Scale Groundwater Bypass could be fast tracked in as little as 6 months if hydrogeology surveys are done quickly and well, wall and piping systems are constructed concurrently with sufficient staffing levels to do the work in an accelerated time frame.

- Challenges

Land ownership could be a challenge depending on who owns the peripheral land around the plant. Since the project does not introduce new radioactive contamination to the land being used, permission for use under a time frame to coordinate with the plant decommissioning schedule would create a potential for a time limited lease or easement to use the land.

The number of wells needed to effectively divert the incoming groundwater would be dependent on the hydrogeology surveys and modeling. This could increase or decrease the project cost based on these findings.

Radioactive contamination could be a potential problem. For this reason a closed system should be used rather than open trenches to pump and divert water. A closed system would prevent surface and runoff contamination. Groundwater should be monitored weekly to

assure any radioactive contamination changes to deep groundwater are identified before it becomes a larger problem. This strategy would also increase public confidence in the safety of this system.

- Others (referential information on patent if any)

There is currently no patent on the concept proposed here. Representative suggestions of brands or types of equipment may be subject to their own patents with the manufacturer.

3.

【Areas of Technologies Requested】

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