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

Technology Information	
Area	5 and 6
Title	Conceptual Model Development
Submitted by	UK National Nuclear Laboratory (NNL)

1. Overview of Technologies (features, specification, functions, owners, etc.)

Conceptual model development (CMD) is a key component underpinning any decision making process undertaken, whether the outcome of the process is the development of a sampling regime, selection of a remediation process or the underpinning of a management strategy. A robust conceptual model of a site and how that site interacts with its surrounding environment is of paramount importance when determining a management strategy for the site and developing a forward strategy.

CMD is a dynamic process, pulling together all existing information available for a given location and assembles that information to develop a picture of the site of interest that is as complete as possible. The model developed identifies all the key parameters associated with the site (geology, groundwater, contamination etc) and presents these in an easily assimilated form. However CMD also identifies where the gaps in understanding exist and allows this uncertainty to be taken into account when making decisions and also enables new information to be incorporated into an existing model to further develop and refine it.

NNL have developed, updated and currently maintain conceptual models for a number of UK and international licensed sites. These conceptual models are underpinned by quality assured information data bases which are updated whenever new data for a site becomes available. These data bases are linked to an integrated geographical information system (GIS) which allows large scale and complex data sets to be easily visualized and interpretated, and provide robust underpinning to any decision making process undertaken.

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

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

Currently available technique. Data base development (replication of existing CMD data base structures) is straight forward and a basic conceptual model can be developed from a limited data supply. GIS compatibility is ensured by using existing database methods.

NNL currently have conceptual models developed for UK licensed sites at Sellafield, the Low Level

Waste Repository in West Cumbria, Capenhurst, Springfields and a number of Magnox sites and also the Radiana Site in Bulgaria.

- Challenges

- Others (referential information on patent if any)

【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