

### Fuel Storage Farm Phase 2, Chek Lap Kok International Airport, Hong Kong

CLIENT: Hong Kong Airports Authority  
ENGINEER: Hong Kong Airports Authority - In-house  
CONTRACTOR: China National Chemical Engineers



The growth of Chek Lap Kok airport since opening in 1998 has seen passenger numbers rise to 40.7 million in 2005; this required the expansion of the airport fuel storage facility. Three 17,000m<sup>3</sup> tanks (including bunding and associated services) were to be integrated into the existing aviation fuel system and Hong Kong Airports Authority awarded the design and build contract to China National Chemical Engineering Group Corporation (Hong Kong Area) Ltd. The design chosen for the fuel tank farm facility had to provide a secure bunded area of a high security lining membrane within the bund and directly beneath the tank bases. The

incorporation of these high performance linings ensure that no leaks or spillage of aviation fuel occur within the facility that could enter the ground water or adjacent sea. After intensive research and evaluation, the lining system selected was an environmentally friendly pre-hydrated geo-synthetic bentonite clay barrier: RAWMAT<sup>®</sup> HDB.



The membrane (supplied in rolls 2m wide by 50m long) was chosen as it provides a highly flexible, self-sealing membrane which could withstand the potential differential settlement of the reclaimed ground within the bunded area, without damaging the seal across the body of the bund or at the numerous plinths and stanchion penetrations. Due to the simple installation procedures this user friendly system was easily installed by the contractors' own labour without the need for sub-contract specialist installers.

The installation of the RAWMAT<sup>®</sup> HDB membrane to the base area within the bund, between the tank bases and the bund wall, requiring 18,000m<sup>2</sup> of membrane. On this section the installation was more complex as the membrane had to be sealed to the external face of the tank ring beams, to stanchions and foundations to the pipe work within the bund.

### Product Advantages

RAWMAT<sup>®</sup> Membranes

- ✓ Offers huge cost savings over concrete
- ✓ Retrofit: Bund Floors relined using strip, lay, replace - minimal handling
- ✓ Can be laid on contaminated sub-base - no removal to land-fill
- ✓ Can be covered with existing materials on bund floor
- ✓ Areas >1,000m<sup>2</sup> can be laid and covered in 1 days operation
- ✓ No need for design of costly construction or movement joints
- ✓ Fixes direct to concrete structures
- ✓ Is buried and requires no additional maintenance



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Rawell Environmental Ltd., Carr Lane, Hoylake, Wirral, Merseyside, CH47 4AZ.  
E-mail: [postmaster@rawell.com](mailto:postmaster@rawell.com) Fax: +44 (0) 151 632 0252

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