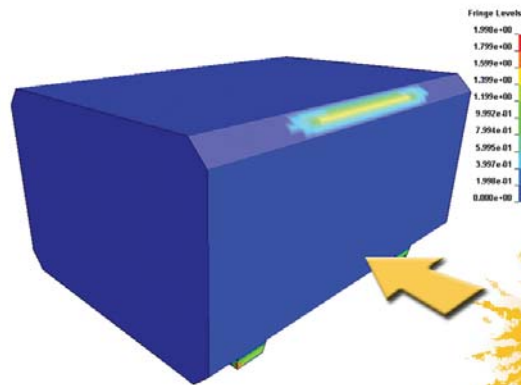


Simulated explosion scenarios for aboveground storage tanks

In today's increasingly unstable political and social environment, safety and security has become a top concern with facility owners storing petroleum and other flammable materials.

With this heightened awareness of security in mind, ConVault Inc. retained Karagozian & Case (K&C) to complete a blast effects analysis (BEA) on the design of the ConVault protected aboveground storage tank (AST). ConVault ASTs feature six inches of reinforced concrete surrounding both the primary and secondary containment of the fuel tank.

Three different threat scenarios were investigated to determine the inherent blast resistance of the ConVault design. Scenarios were chosen to reflect blast distances recommended in FEMA's Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings.



Blast Test Scenarios
 Vapour cloud explosion (10 psig)
 50 lbs. of explosives at 5ft.
 500lbs. of explosives at 20 ft.

Scenarios Simulated
 A suitcase bomb
 A car bomb
 Blast from a vapour cloud

The scenarios investigated were: a blast from a vapour cloud such as might accumulate at a refinery with explosive pressures at 10 psig (the higher end of the range of expected pressures); a blast from 50 lbs of high explosive (HE) TNT as might be carried by a typical suicide bomber; and a blast from 500 lbs of high

explosive (HE) TNT representing a typical car bomb.

A 2,000 US gallon tank was used to represent a typical ConVault tank design. The criteria for a successful test was considered to be one where the tank would not move more than two inches, and the integrity of the primary tank would not

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be compromised. There should be no resulting fuel leaks from the primary tank.

Overall, the Blast effects analysis indicated that the ConVault AST was very resistant to the effects of the blast loads considered. The mass provided by the reinforced concrete outer shell protected the steel tank extremely well, and greatly enhanced the resistance to all blasts. It withstood the blast with high limit pressures resulting from the explosions from a vapour cloud, a 50 lb HE – TNT blast centered at 5 feet from the tank, and a 500 lb HE – TNT blast centred at 20 feet from the tank.

The magnitude of these blasts at the respective proximities would be expected to destroy and/or relocate lighter, less robust fuel storage tanks. However, the ConVault AST would not remain in place, but could survive with no fuel leakage from the primary tank.

Safety and security has become a top concern with facility owners storing petroleum and other flammable materials.

Contact Justin Britt, info@core-es.com

New Appointment



Sanitherm is pleased to announce the addition of Larry Sawchyn to the position of General Manager at its Office in North Vancouver. Sanitherm's primary business is the design, assembly and installation of both portable and permanent water and wastewater treatment systems for both industrial and municipal clients in North America and worldwide.

Larry brings with him many years of management experience, most recently as a senior level manager in charge of project development of water and wastewater projects within the Environmental Infrastructure business unit of a major engineering company. With Larry's previous experience, we expect to provide a high level of service to solve the most challenging water and wastewater applications.

You can contact Larry at (604)986-9168, fax (604)986-5377 or E-mail lsawchyn@sanitherm.com. Sanitherm's website is www.sanitherm.com.



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