Vertical Barrier Systems

GSE Vertical Barrier Systems are designed to block lateral migration of subsurface fluids. These subsurface fluids include fresh water, salt water, methane gas, and contaminated leachates from waste piles or leaking containments. A vertical membrane barrier blocks the lateral migration of these items to allow for containment, exclusion, treatment or removal of the hazard. GSE manufactures two, patented, high density polyethylene (HDPE) Vertical Barrier Systems – GSE CurtainWall and GSE GundWall. A major benefit of a HDPE Vertical Barrier Systems is its flexibility, which allows it to conform to subsurface soil movement. Plus, unlike slurry, steel or PVC, a HDPE geomembrane is an excellent barrier to liquid and gases, and has a long service life. Both systems can be installed quickly and economically.

GSE Vertical Barrier Systems are in use around the world in a variety of environmental and civil applications.

GSE CURTAINWALL INTERLOCK

The GSE CurtainWall Interlock is a reversible HDPE profile designed with multiple sealant chambers. The GSE HyperTite hydrophilic rubber seal is inserted into one or for extra security, multiple chambers.

The GSE CurtainWall Interlock is ideal for trenched applications due to its ease of installation. When installing wide panels into a trench, the GSE CurtainWall Interlock profile can be manipulated easily to ensure successful alignment of the panels.

GSE GUNDWALL INTERLOCK

The GSE GundWall Interlock consists of male and female HDPE profiles, and works much like a dovetail joint. This interlock is tight and creates a mechanical seal by using the GSE HyperBloc hydrophilic sealant in the key cavity. For added security, the GSE Hyper- Bloc swells in water to fill in around the seal, using the GSE HyperBloc hydrophilic sealant in the key cavity.

The GSE GundWall Interlock configuration allows for panels to be vibrated into place using an insertion plate in loose to medium dense, non-cohesive soils without prior excavation. Installers have achieved insertion rates as fast as 30 vertical feet per minute. Trenchless installation saves time and excavation expense.

THE INTERLOCKS

Patented interlocks ensure leak free panel connections. The interlocks are sealed during installation using an extruded, hydrophilic gasket or in the case of GSE Gundwall a hydrophilic sealant. The hydrophilic gasket, called GSE HyperTite, swells up to five times its dry volume when exposed to water. This swelling action fills the seam cavity to prevent fluid migration through the strong interlock, even after soil settlement and deformation. The extruded GSE HyperTite gasket is installed in one continuous section as the interlocking joints are joined thus assuring an uninterrupted seal. In addition, GSE offers an optional patented procedure for electrical confirmation assuring full-length makeup of the joint. GSE HyperTite has superior physical and chemical resistance.

The interlock is fusion welded to the HDPE panel at the factory to ensure the highest quality sheet-to-interlock connections. By design, the welded connection is stronger than the HDPE geomembrane itself, and the interlock is stronger than the welded connection.

ENVIRONMENTAL

Superfund legislation arose from the need for extensive cleanup of contaminated industrial facilities around the United States. Much of the cleanup effort has focused on removing the contaminants and reme-
diating sites to pristine conditions. Such cleanup meth-
ods are often technically or economically unattain-
able. The result is a lack of effective remedial action.

Containment is a proven, effective alternative reme-
dial action. A GSE Vertical Barrier System is the
fastest and most secure method for containing a
hazardous subsurface fluid plume. GSE Vertical
Barrier System provides immediate protection and
long-term containment assurance.

COMPLETE CONTAINMENT
Installation of a GSE geomembrane cap in conjunc-
tion with a vertical barrier will provide complete
containment. The “Cap and Contain” arrangement
will prevent the intrusion of precipitation and contain
any volatile components or gas emissions. This not
only provides more complete containment where
necessary, but also minimizes the amount of fluid that
may require removal and treatment as the final step in
remediation. This type of system can be permanent,
or utilized to allow for complete development of effec-
tive and economical remediation techniques as well
as funding.

WETLANDS
GSE Vertical Barrier System is also used for a wide
range of environmental application including protec-
tion and creation of wetlands.

CIVIL
Changes of subsurface water levels can cause soil
stability problems for manmade structures. One way
to mitigate the damaging effects of subsurface water
flow is through the use of an economical HDPE
Vertical Barrier System.

One innovative project utilized a GSE Vertical Barrier
System in the construction of a 110 foot foundation
wall. To reduce construction risk and control costs, the
Vertical Barrier System was installed along with the
interlocking rebar cages in a bentonite slurry mix.
Concrete was then poured to displace the slurry to
create the foundation wall. The vertical membrane
barrier allowed for dewatering during excavation
and acts as a long-term waterproofing membrane.

ENGINEERING SUPPORT
The GSE Engineering Support Staff is comprised of
multidisciplinary product professionals to support you
across a range of project requirements. This includes
knowledge in geomembrane, geosynthetic clay liners,
geonet, geocomposite, nonwoven geotextile and
concrete protection products and application
solutions. Rely on our technical staff to help you solve
your project issues.

CUSTOM FABRICATION
The GSE Custom Fabrication Group builds products
to your exact specifications. We have extensive expe-
rience in prefabricated polyethylene products and
components. A few examples of our custom fabri-
cated products are Aqua Tanks, Quick Containment,
concrete protection liners, boots, sumps, pads, pipes,
daily covers, temporary containment, containment
boom and other products to fulfill your fabrication
needs.

INSTALLER NETWORK
The GSE Installer Network leads the industry with the
most experienced, large, and flexible crews available
around the world to meet your installation require-
mnts. Each installer is equipped with state-of-the-art
welding and testing equipment to ensure a successful
installation. Selecting a qualified installer with the
right product knowledge is critical to your success. Let
GSE connect you to the right installer to handle your
installation project of any size from start to finish.