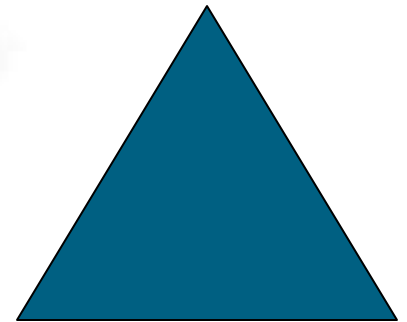
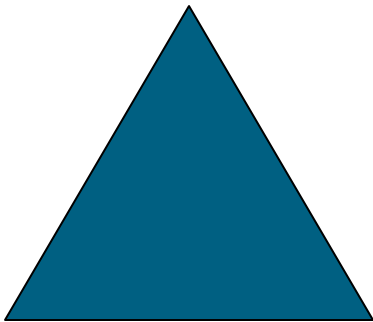
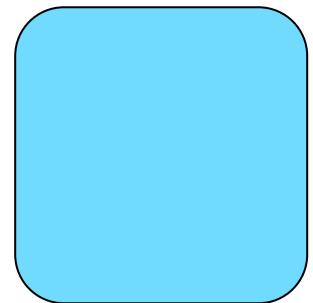
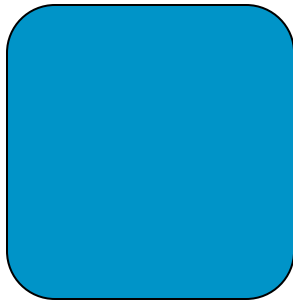
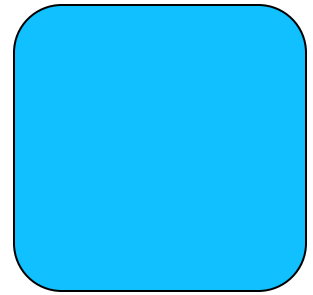
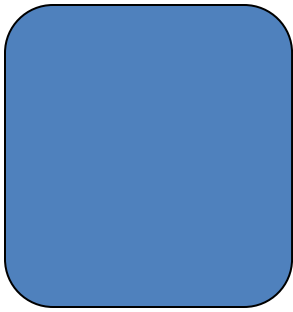


GLOBAL TECHNICAL RESOURCES



COMPANY PROFILE

**Geosynthetic Lining, Water Proofing, Thermoplastic Piping
& Thermoplastic customized products**

INTRODUCTION

One of the leading trading houses and a broad line supplier of all types of Industrial materials and facilities maintenance serving businesses organizations and institutions throughout the World with offices in India, and GCC Countries. By providing competent advice, regardless of customer's industry, the materials involved and the manufacturing processes, technologies and competencies under one roof and offers its customers individual solutions. Our major services are HDPE,PVC,PP,PVDF and GCL lining for reservoirs and lagoons to municipal water ponds, Landfill Liner & Caps, Animal waste lagoons, Golf course ponds, Gas collection covers, Pond and Lake liners, High Density Polyethylene (HDPE) is the most common field fabricated geomembrane material.



We have got highly experienced plastic welding technicians who are trained inhouse and over the field for a period of 2 years to 8 years in the field of plastic welding viz., Wedge welding, Extrusion welding, Hotair welding, Butt fusion welding, Electro fusion welding, IR Welding etc to perform various welding activities in different types of thermoplastics viz., HDPE,PP,PVC,PVDF etc. We also perform the testing for all these weldings for various products.

1. HDPE & GCL GEOSYNTHETIC LINING

HDPE GEOMEMBRANE

The popularity of High Density Polyethylene (HDPE) is primarily due to its low initial material cost and excellent chemical resistance. This allows thicker sections to be used compared to other geomembrane materials. A thick, durable, HDPE liner can be placed in exposed applications where the cost of other materials may be prohibitive. HDPE has excellent chemical resistance which is often the driving force behind the selection of HDPE. HDPE is a field assembled lining material that cannot be practically fabricated in the shop. All HDPE projects, regardless of size, must be installed by trained installers. HDPE is a versatile material which is used widely across all applications. One of the main uses of HDPE is for landfill base liners where its chemical resistance is used to good effect. HDPE can also be used in a multitude of secondary containments, pond linings, and water containment projects. HDPE is best used as an exposed lining material, and has the UV resistance required for many years of outstanding service.

TYPICAL LINING APPLICATIONS INCLUDE:

- Landfill Liner & Caps
- Animal Waste Lagoons
- Golf Course Ponds
- Gas Collection Covers
- Pond & Lake Liners
- Irrigation Reservoirs
- Waste Water Treatment Lagoons
- Mining Tailing & Heap Leach Pads
- Canal Lining



2. GEOSYNTHETIC CLAY LINERS (GCLs)

Geosynthetic Clay Liners (GCLs) are geotextile and bentonite composites (typically sodium bentonite sandwiched between two layers of geotextile) engineered for a variety of environmental containment applications. The geotextiles offer a long lasting resistance to physical or chemical break-down in harsh elements, while the bentonite's high swelling capacity and low permeability provide an effective hydraulic seal.



GCLs provide an excellent alternative to conventional Compacted Clay Liners by replacing a thick section of compacted clay with a thin layer of pure sodium bentonite. Benefits include easy installation, better hydraulic performance and resistance to varying weather conditions. Installation for most GCL projects can be completed by construction personnel using conventional equipment. GCLs also have unique self-sealing attributes, reducing the risk of failure due to adverse field and operating conditions.

TYPICAL LINING APPLICATIONS INCLUDE:

- Canals, stormwater impoundments and wetlands
- Secondary containment
- Highway and civil
- Landfill liners
- Landfill caps
- Mining, Mine tailing dams
- CCR storage
- Red mud storage
- Heap leach pads
- Pond liners
- Solid waste storage bottom liner



3. PVC- POLY VINYL CHLORIDE

Poly Vinyl Chloride (PVC) is the most commonly specified **lining material** in the industry. Manufactured by the calendaring or extrusion process, it is a **highly flexible, non-reinforced, cost-effective, waterproofing geomembrane** with many uses and advantages. PVC has high puncture strength and excellent abrasion resistance. It is resistant to a number of industrial chemicals. Because of its high flexibility, PVC liners readily conform to sub grade contours and offer excellent interface friction without being textured. The use of a PVC liner prevents contaminants from entering groundwater sources or streams. In addition, it conserves potable water resources by preventing seepage loss. PVC is available in a variety of formulations including fish grade and oil resistant. It is available in 20 mil, 30 mil, 40 mil and 60 mil thicknesses.

Installation of PVC

PVC supports diverse field seaming capabilities (thermal fusion by hot air wedge welders or chemical adhesives). Now, with advanced technology in field welding, the use of wedge welders that apply heat and pressure to form a homogenous weld are becoming the state-of-the-art. Wedge welding provides excellent seam properties and reproducible welds and is faster and cleaner than solvents.

AREA OF APPLICATIONS

- Decorative Ponds & Lakes
- Water Features
- Fish Hatcheries
- Reservoirs
- Landfill Caps
- Waste Water Treatment Facilities
- Golf Course Ponds
- Streams
- Irrigation Ponds
- Canals & Channels
- Aquatic Habitats
- Storm Water Holding Basins
- Detention & Retention Ponds



4. Geotextile Products

Standard woven slit-film polypropylene geotextiles, usually called "wovens" are an economical range of geotextiles that combine high strength with low cost. These materials are made by weaving pre-stressed polypropylene tapes in a simple weave pattern. The resulting fabric has a high strength to weight ratio. Slit-film wovens are primarily used in roadbuilding and embankment construction but can be used in most applications requiring the separation of one type of soil from another. Slit-film wovens help to speed construction with short term reinforcement of the base. Slit film wovens can also be used in sediment control products such as floating silt curtains and silt fence.

Features

- Low cost slit-film woven geotextile
- Woven from durable polypropylene tapes
- Light and easy to handle
- Available sewn into multiple widths
-

AREA OF APPLICATIONS

- Main use is separation in roads and parking lots
- Separates fill soils from soft sub-soils
- Roads in soft soils such as muskeg, peat, and other soft areas
- Resist rutting in parking lots, driveways, and access roads

Besides all of the above we supply and install the following lining materials also

5. CSPE (HYPALON)

CHLOROSULFONATED POLYETHYLENE

CSPE (Hypalon) demonstrates excellent durability against UV and Ozone exposure and resistance to a wide variety of organic and inorganic chemicals. **CSPE liner** will retain flexibility in freeze/thaw conditions and will resist the elements better than any known material. It's resistance to oxidation and immunity to ozone and UV make it a lining choice in potable water and some industrial waste applications (that don't contain fats oils or hydrocarbons), floating covers and exposed lagoons.

6. EPDM- ETHYLENE PROPYLENE TERPOLYMER

EPDM is a **durable geomembrane** with a 20-year proven performance history in exposed applications, such as **pond liners**, lakes, canals, fish stock ponds. It can be self-installed in residential water features. EPDM exhibits high tensile strength and excellent resistance to punctures, UV radiation, weathering and microbial attack. It is also highly flexible material with a low co-efficient of thermal expansion and contraction, enabling it to lay flat in a wide range of temperatures and terrains thereby conforming well to irregularities in the sub grade.

7. LLDPE- LINEAR LOW DENSITY POLYETHYLENE

LLDPE liner is designed to be used when higher elongation properties are required. It is similar to HDPE, but is lower in density, thus being more flexible. LLDPE is generally shipped to job sites in large rolls and deployed by machines. Seaming by CLI's certified installation technicians occurs in the field by heat fusion welding. LLDPE is also available in textured versions to enhance traction.

8. RPE- REINFORCED POLYETHYLENE

An **extremely durable liner product**, RPE is UV stable and is designed to be left exposed. It is a proven solution mostly due to its excellent puncture resistance. RPE can be used in exposed wastewater treatment plants, agricultural ponds, oil & gas temporary evaporation ponds, aquaponics, golf course pods, irrigation reservoirs and more. Reinforced Polyethylenes (RPE) are manufactured from a very chemical-resistant, Linear Low Density Polyethylene with excellent cold crack performance. **RPE Liner** is formulated with thermal and UV stabilizers to ensure long life and excellent chemical resistance. It is available in various colors (colors are available after consultation as special order items with a minimum purchase) for an aesthetically pleasing appearance.

9. RPP- REINFORCED POLYPROPYLENE

Reinforced Polypropylene (RPP) geomembrane is a heat-weldable polyester reinforced sheet designed for floating covers and liners in potable and industrial water containment applications. The membrane is specifically formulated for long-term use in buried or exposed geomembrane applications. The membrane is based on a UV-stabilized polypropylene copolymer that does not require either polymeric or liquid plasticizers to maintain flexibility.

9. ANK-FLEX 30 MIL LLDPE BLACK/GRAY MEMBRANE

Ank-Flex is a co-extruded linear low density polyethylene **geomembrane** developed for applications requiring **enhanced flexibility** along with a combination of **high strength** and **impact resistance**. These elements are critical for earthen pits, ponds and reliable above ground tank lining systems. Tank-Flex includes fine partial carbon black for protection from UV radiation and thermal degradation on one

side. A gray color on the other side minimizes thermal expansion while providing a cooler surface. Contrasting colors provide for ease of detection of accidental damage. Both sides are designed for ease of welding in the factory or field.

10.WCPE- WOVEN COATED POLYETHLYNE

This versatile product is used in many cover applications. **Woven Coated Liner materials** are high strength, light weight products suitable for many containment needs. It is a flexible material that is available in custom sized panels. It is a cost effective, light weight - yet **durable membrane**. Thicknesses range from 12 to 30 mil. These characteristics make it ideal for temporary mud pit liners, temporary **pond liners**, ADC covers, temporary rain covers, and covers for many other uses.

11. XR-5

All **XR-5 geomembrane products** are classified as an Ethylene Interpolymer Alloy (EIA). They are very stable, with low thermal expansion and contraction properties and come in factory panels up to 15,000 square feet (1400 square meters) for less field seaming. Example projects include floating covers, tank farms, wastewater impoundments, landfill liners and potable water applications. XR Geomembranes are capable of performing in harsh environments.

Manufacturing processes and fabrication systems meet the industry's most stringent performance demands. **XR-5 Liner** is highly resistant and non-degradable with extreme puncture and tear resistance, as well as dimensional stability under high loads and temperature fluctuations.

WATER PROOFING

Bitumen waterproofing of buildings and structures

To extend the life of monolithic structures and protect them against ingress of moisture and consequently to reduce the probability of occurrence of dampness and mold inside the house it is required using waterproofing material. Bitumen waterproofing is the most common, easy and inexpensive way. Bitumen itself is waterproof and most important, it is completely impervious to the destructive impact of moisture. Not only the low cost of the materials is of great importance, but also the ease of use.



Advantages

1. Inexpensive material.
2. Ease of performance
3. High resistance to mechanical damage
4. The ability to cover complex surfaces

A bituminous waterproofing membrane is used for reinforced concrete roof waterproofing. This waterproofing membrane comes on site in the form of rolls manufactures and packed in the factory properly sealed. The specifications and safety manuals of this membranes provided by manufacturer should be read before installation process. Fire safety and prevention is the most



important while using this membrane.



PVC waterproofing membrane **as a perfect solution for any building**

PVC water proofing membrane is a modern roofing material, which is made of high quality flexible (plasticized) polyvinyl chloride. Depending on the application area there are reinforced and unreinforced membranes. Reinforced waterproofing membranes has a reinforcing base in the form of polyester mesh or glass fiber

and it is used for waterproofing of roofs. Reinforced membranes have increased durability. Unreinforced membranes are more flexible, have high tear resistance and are used for waterproofing of underground structures, tunnels, swimming pools. etc. Manufacturers of PVC membranes offer diverse width and length of the material. The width of the material ranges from 3 to 7 feet. The rolls can be between 60 and 75 ft in length. The thickness of the PVC membrane is 1.2 mm such diversity in the selection of PVC membranes allows laying the roof of any complexity with a minimum of seams and labour costs.



- Resistant to changes in temperature
- Precision in the execution of complex elements
- Resistance to the movements of structural elements of buildings
- Resistance to oxidation and uv rays
- High durability
- Fast to mount
- Fire resistant
- Diversity of colors.

Membrane roofing is good for covering flat roofs. Thanks to the additional usable space on such roofs it is possible to arrange a place for recreation and entertainment, they are covered with a carpet of vegetation. Here the membrane covering of the roof is simply irreplaceable. **PVC waterproofing membrane** can serve for almost fifty years without losing its reliability and positive characteristics.

Manufacturers offer a variety of coloring for application of PVC membranes on flat roofs of new buildings (for example, for sports on a well-fenced roof). Experts specify that the PVC membrane does not require additional maintenance during operation.

Main advantages of PVC waterproofing materials

PVC membranes are one of the latest high-tech solutions for waterproofing of roofs, foundations and so on. Unlike bituminous materials PVC films have higher:

- Strength
- Elasticity and tightness
- Strength of the welds (at the junction of sheets)
- Atmosphere and chemical resistance
- Vapor permeability at 100% water resistance
- Resistance to wind loads
- Frost-proof



HDPE, PVC, PVDF & PP PIPING & EXHAUST SYSTEMS

We supply and install the complete range of HDPE (High density poly ethylene), PP (Poly propylene), PVDF (Polyvinylidene Fluoride), PVC (Poly vinyl chloride), GRP (Glass fiber-reinforced plastics), FRP (Fiber reinforced plastics), RTR(Reinforced thermosetting resin plastic), and lamination work in Piping systems for water, fire fighting, waste water, chemical processing piping in chemical plants, water treatment plants, desalination plants, Evaporation ponds, Waste water ponds, Potable water systems, Irrigation systems etc.. All installations will be carried out in accordance with ASTM (American Standard), BS (British Standard) and DVS (German Standard) based on the requirement of the client. The photographs shows the recent installations in KSA.



HDPE PIPE INSTALLATION IN MARAFIQ



HDPE EXHAUST INSTALLATION IN MARAFIQ

POLY PROPYLENE PIPING & EXHAUST SYSTEM



POLY VINYLIDENE FLUORIDE (PVDF) PIPING SYSTEM



Tank, Trench & Floor Linings

With the introduction of mechanically anchored thermoplastic lining systems, we have considerably expanded the selection of materials in the field of industrial corrosion protection. Interlocking a thermoplastic lining that is highly resistant to chemical and corrosive attack with concrete, a material that can withstand extreme static loads, brings about an ideal synergic combination of stability, reliability and durability. Thermoplastics have a high chemical resistance, can be subjected to mechanical loads and are also impervious to biogenic corrosion. Welded to form a gas and water-proof surface, the smooth, anti-adhesive finish offers very little friction and prevents incrustations. These lining systems are easy to install, can be tested reproducibly and, if damaged, can also be repaired easily. The materials utilised, i.e. polyethylene (PE-HD), polypropylene (PP), polyvinylidene fluoride (PVDF), or polyvinyl chloride (PVC) are available in various



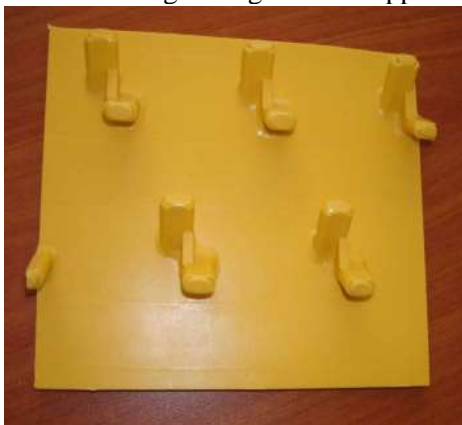
Sewage pipe system completely lined with mechanically anchored thermoplastic materials.



The advantages of thermoplastic

Lining concrete structures with one of our several chemical resistant thermoplastics, depending on the thermoplastic material used offers many advantages over other types of lining systems:

1. Adaptable to a wide range of application configurations and concrete mixes.
 2. Highly resistant to impact and abrasion .
 3. Excellent chemical resistance.
 4. Suitable for food industry use.
 5. Significant flexibility for bridging concrete cracks.
 6. Long service life and low maintenance
 7. Wide temperature range and UV –resistance
 8. Integral, mechanical anchoring system provides perfect bonding to the concrete
-
1. High pull out resistance up to 42t/m².
 2. High shear resistance
 3. High back pressure resistance
 4. Optimized anchoring in all directions
 5. Suitable for grouting in rehab applications



Tank & Floor Linings (Contd.)

We do the lining of concrete and steel tanks, floors and trenches with HDPE, PP sheets to make them corrosion resistant, especially where the acids spilling is occurred. The sheets are mounted to the castform-system. The steel reinforcement is put in place once the liners have been secured to the forms and afterwards the outer formwork is erected. Then the concrete is poured. After adequate curing of the concrete the formwork is removed and the seaming using extrusion technique is executed and tested.

This technology is suitable for

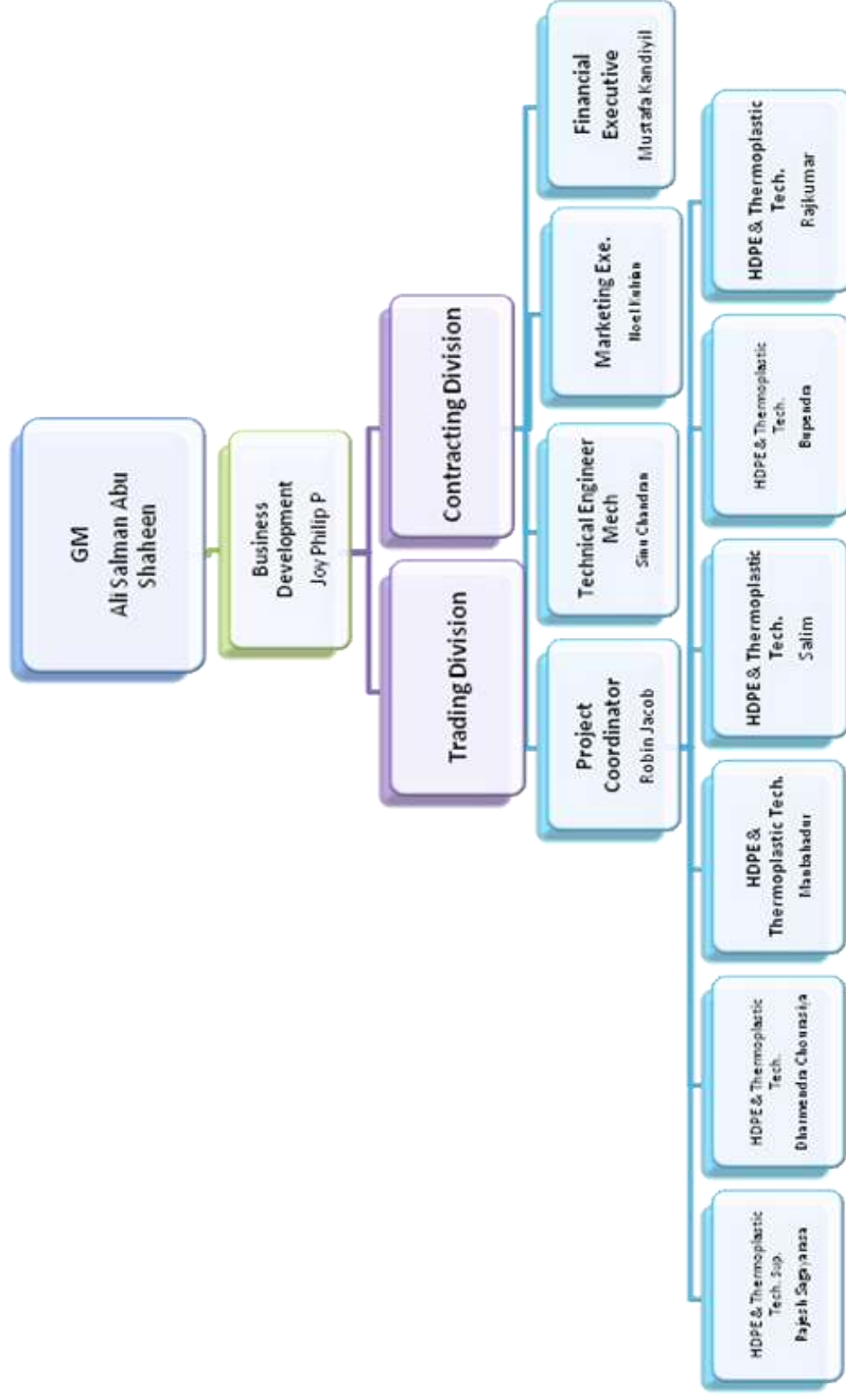
1. Lining of new structures cast in site and precast
2. Relining of existing structures

Relining of structures

3. The technique applicable for near all structures independent of the corrosion progress. The sheets can be fixed to profiles or to a formwork inside. The liners are joined using extrusion technique.
4. Depending on the gap between the liner and existing structure a non-shrinkage grout or concrete is poured. During the pouring and curing the liner is supported by formwork and after removal tested.

ALI SALMAN ABU SHAHEEN TRD EST.

Organization chart



PROJECTS COMPLETED / ONGOING

Our experience with the following lining job for our company and technicians for more than 6 years in this field made us outstanding in all GCC market.

1. Repairing of PE lining job inside the pipe in SATORP.
2. HDPE lining job in Jubail Industrial port.
3. 2 million SQM, HDPE Geomembrane & GCL lining job in Maden.
4. PP-H tanks for Princess Noora University Riyadh.
5. HDPE tank repairing in S-Chem/Chevron Jubail.
6. PP tank manufactured and repaired for fire fighting vehicles, Reda, ARAMCO.
7. Lining of silos in SABIC Jubail for flow problems.
8. Chemical tank lining with PP-H for Champion Arabia/Nalco.
9. Customized wash boxes in PP-H for MAADEN Ras Al Khair.
10. Fabricated PVDF pipes lined with FRP for MAADEN.
11. Repaired HDPE chemical tanks for Fluor.
12. Installation of PVDF, PVC, HDPE and FRP pipes for SAMSUNG at Qurrayah Power Plant.
13. Installation of HDPE, GCL & GEOTEXTILE geomembranes for Ministry of municipal affairs, Duba, Saudi Arabia
14. Installation of HDPE & GCL Geomembrane lining for Udhalya Aramaco.
15. 2.5 million SQM Installation of HDPE, GCL & GEOTEXTILE Geomembrane lining for Maaden, Turaif.
16. Installation of HDPE geomembrane in Chevron, Sabic, Jubail.
17. Currently installing PVC and HDPE waterproofing and HDPE Geomembrane lining at Ministry of water & Electricity department, Tuqba, Al Khobar.

LIST OF EQUIPMENTS USED FOR HDPE & PVC LINING

- 1.** Wedge welding machine, PWT USA.
- 2.** Wedge welding machine, Munch, USA.
- 3.** Wedge welding machines, Demtech, USA.
- 4.** Extrusion welding machine, Polyweld, USA.
- 5.** Extrusion welding machine, Munch, USA.
- 6.** Extrusion welding machine, Liester, Switzerland.
- 7.** Peel testing machine, Polyweld, USA.
- 8.** Cutting Machine, Munch, USA.
- 9.** Spark testing machine, UK.
- 10.** Hotair Machines from Wegener Germany & Leister Switzerland.
- 11.** Tools and Tackles from Wegener, Germany.



Discover the benefits of working with

GLOBAL TECHNICAL RESOURCES

Contact Us

GLOBAL TECHNICAL RESOURCES

Mallappally (W) P O

Kerala, India, Pin:- 689 585

Ph:- +91-469-2682320

Mob:- +91 9747955791

E-mail:- info@[globaltech.net](mailto:info@globaltech.net)

Web: www.globaltech.net