



The Pioneer Of Geosynthetics  
S I N C E 1 9 7 2

## GSE Installation Services

### EXPERIENCE YOU CAN DEPEND ON

GSE's Installation Services is the most experienced geosynthetics installation team in the industry, with projects dating back to 1972. With over 20 full crews available throughout the United States, GSE is well positioned to meet all of your geosynthetics installation requirements.



Deploying rolls of GSE HDPE geomembrane in a landfill application.

GSE is dedicated to providing you with geosynthetics installation of the highest quality at a competitive price. GSE Installation Services can offer you:

- One-source responsibility with a "can-do" attitude
- The highest commitment to safety
- Complete technical support
- Extensively trained technicians
- Complete QC/QA reports
- "as-built" panel layout drawings
- Turnkey services

### EXPERIENCE THAT SAVES TIME AND MONEY

GSE's experienced Estimators, Project Managers, and Technical Support Representatives are committed to ensuring project installations proceed as smoothly as possible. To achieve this, GSE professionals work closely with customers, engineers and contractors to offer suggestions that will improve or enhance a project installation. Suggestions that provide innovative solutions to special problems such as leak detection, wind ballast systems and leak-proof pipe penetrations help the design engineer to create a high quality geomembrane liner system that saves time and money.

As part of the complete installation package, GSE provides its customers "as-built" and detail drawings, that are produced in our fully computerized drafting department. These drawings are available in printed form or digitally.



GSE installation team reviewing project specifications.

### TRAINING AND SAFETY

GSE is committed to operating safely. GSE's Safety Modifier Rate has been the lowest in the industry.

To ensure all GSE construction individuals are current with industry and project-specific training and safety requirements, GSE provides the following training:

- 40 hour hazardous waste (HAZWOPER) CFR 1910.120 (e)
- Confined space entry CFR 1910.146
- MSHA training (Mine Safety)
- Lockout and tagout training CFR 1910.147
- Respirator fit testing
- Proficiency testing
- Heavy equipment training
- Defensive driving; D.O.T.
- First aid; CPR; bloodborne pathogens



GSE quality assurance technician at work.

### WELDING

GSE offers the most advanced welding methods available. Through years of extensive development, testing and experience, GSE consistently has remained at the forefront of geomembrane welding technology. Both extrusion and fusion welding are utilized for seaming GSE geomembranes.



GSE fusion welding method.

**FUSION WELDING**

Fusion welding is the primary method for joining two adjacent, overlapped geomembranes. The wedge welder creates a fusion weld by heating the facing overlapped surfaces and then pressing them together while in a molten state. The result is a permanent bond. The wedge welding method is fast and consistent. In addition, wedge welders produce a double-track weld. Between these two weld tracks is an air channel which is used to non-destructively air pressure test the integrity of the seam.

**EXTRUSION WELDING**

Extrusion welding is primarily utilized for non-linear seams, pipe penetrations, patches or anywhere that it is impractical to use a wedge welder. At the sheet overlap, the extrusion welder integrates molten polyethylene onto the prepared geomembrane seam to create a permanent weld. The result is a continuous connection of the adjacent panels through the seam. The extruded welding material is manufactured from the same type of resin as the geomembrane and therefore exhibits the same chemical resistance and physical properties.



GSE extrusion welding method.

**NON-Destructive AND Destructive WELD TEST**

GSE tests 100% of the welded seams. Non-destructive air pressure testing is used for wedge weld seams, and vacuum-box testing for extrusion weld seams. In addition, destructive testing is used for all seams at specified intervals.

Destructive seam testing involves cutting out a section of the seam. Test strips are cut from the section and tested on site. The rest of the sample may be sent

to a GSE lab for shear and peel testing according to ASTM D 6392.

Shear testing applies a tensile stress from the edge of one sheet, through the weld to the edge of the adjoining sheet. During the peel test, the overlapping portions of the sheet are pulled in opposite directions to observe weld separation behavior.

**24 HOURS QUALITY ASSURANCE TESTING**

To ensure consistent product quality and to verify site weld quality, GSE operates complete quality assurance laboratories at its manufacturing locations. Destructive weld samples taken at a project site during the day can be delivered overnight to GSE's laboratories. These labs can also assist independent inspectors with testing.

**COMPLETE INSTALLATION SERVICES**

GSE Installation Services is your one-stop source that offers the experience, training, expertise and complete range of geosynthetic products, fabrication and technical support.



GSE installation crew.

**ADDITIONAL INFORMATION**

If you have an upcoming project please give us a call. We will provide you with recommendations for material and installation.