

CUSTOM FABRICATION | OIL & GAS WELL PAD CONTAINMENT

PROJECT OVERVIEW

A producer operating in Pennsylvania's Marcellus/Utica shale region required a fabricated geomembrane containment system for a large oil and gas well pad. The containment system needed to meet regulatory requirements while improving installation efficiency and reducing field welding demands on site.

PROJECT GOAL

- Provide reliable secondary containment for a large well pad containment area.
- Reduce field welding requirements and simplify installation logistics. Improve deployment efficiency for crews working in summer conditions.
- Utilize a geomembrane system with high puncture resistance and traction properties for active oilfield operations.
- Minimize material waste while supporting a fast installation schedule.

KEY TAKEAWAYS

- Approximately 77,000 square feet of containment was installed using custom factory fabricated geomembrane panels.
- Factory fabrication reduced the installation to only five field welds. The full containment installation was completed in a single day with a six-person crew.
- Tight subgrade preparation specifications helped eliminate the need for felt underlayment.
- Reduced field seaming lowered installation risk and minimized potential seam testing failures.
- Custom panel fabrication streamlined deployment and reduced material waste compared to field fabrication from roll stock.



Custom Fabrication for Well Pad Containment

This well pad containment project required more than supplying standard roll stock geomembrane. The site geometry, perimeter berm design, deployment logistics, and installation schedule all needed to work together to support efficient containment construction in an active oil and gas environment.

The containment system utilized approximately 77,000 square feet of 60 mil Coated Woven Polyethylene (CWPE) geomembrane with a felt laminated traction surface. The material, identified as 60XGL, was selected for its combination of puncture resistance, tear strength, flexibility, and improved surface traction for field personnel.

The containment layout incorporated eight-inch triangular open-cell foam berms around the perimeter. While the producer provided the containment footprint, ITL assisted in optimizing the geomembrane panel layout to improve deployment efficiency and reduce field welding requirements.

Rather than field welding multiple 12-foot-wide roll stock panels across the entire site, ITL designed six custom factory fabricated panels that reduced the installation to only five field welds total. This modular fabrication approach simplified panel placement, minimized material waste, and significantly accelerated installation.

CUSTOM FABRICATION | WELL PAD CONTAINMENT

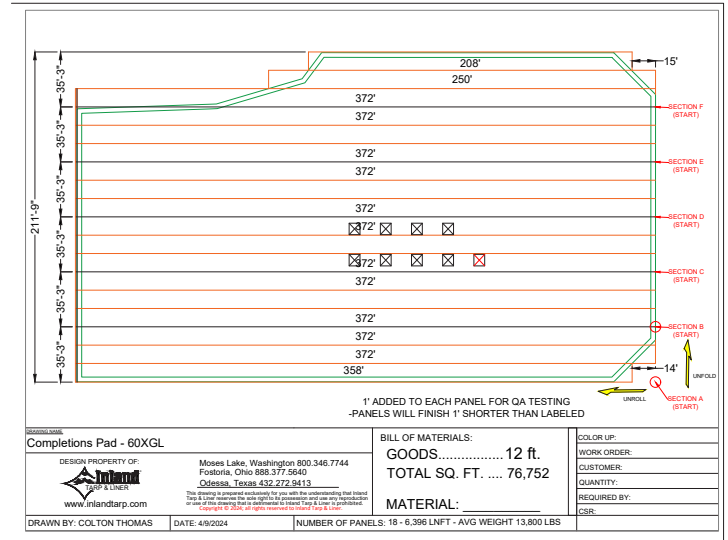
Material Performance and Installation Efficiency

The 60XGL geomembrane is a six-ply reinforced CWPE material consisting of dual HDPE scrim reinforcement layers coated with LLDPE for flexibility and liquid containment performance. The felt laminated surface was incorporated to improve traction and worker safety during active well pad operations.

Subgrade preparation also played an important role in the project's success. The site specification required removal of rocks larger than 0.5 inches prior to installation, along with compacted native material achieving 95-98% relative compaction. Because of the prepared subgrade conditions and the geomembrane's puncture resistance, the producer was able to eliminate the need for a separate felt underlayment layer.

The fabricated containment system was fully installed in one day using a six-person crew, including panel deployment, field welding, and berm construction. Reducing the number of field seams not only improved installation speed but also reduced potential seam testing failures and minimized crew exposure during extreme summer temperatures.

Custom fabrication also improved overall project efficiency by reducing material handling, lowering labor demands, and supporting the producer's operational and ESG objectives through reduced material waste and streamlined installation practices.



Above: Sample CAD rendering for the well pad.



Above: Overlay showing the fabrication match to the CAD rendering as the pad was laid out in the field.

