

360 DEGREE METAL RECYCLING SECONDARY CONTAINMENT LINER

**PROJECT NAME:**

360 Degree Recycling

PROJECT LOCATION:

New Carlisle, IN

PROJECT APPLICATION:

Hazardous Waste Containment

MATERIAL USED:

Absolute Barrier® Liner System



Installation of the secondary containment system utilizing Absolute Barrier®

PROJECT CHALLENGES:

- Hazardous waste containment for heavy metals and VOCs
- Containment of both liquid and gas phased VOCs required
- Geomembrane needed to be durable for use with rigid overlay system

PROJECT OVERVIEW:

- When a new auto shredder operation was proposed near New Carlisle, Indiana, the designers and owners wanted an extra step to secure permitting and ensure locals of the environmental protection measures being used for the site. The 360 Degree Metal Recycling facility was to sit on an 18-acre footprint and house various pieces of machinery used to dismantle and separate automobiles for recycling. The processing and disposal of these vehicles, due to the diverse content of metals, fuels, and other fluids, presented a strong environmental challenge. The use of a “hardscape” cover system was designed into the project and included large concrete pads and diversion areas. These areas were used to support the heavy machinery along with diverting hazardous runoff into designed containment systems. The concrete overlay would be used as a working platform and could be viewed as a primary boundary layer for containment. But a more permanent and long-term secondary barrier was needed. This extra layer would need to provide protection from operational leaks and spills caused by both the automobiles being recycled and the recycling machinery. It would also need to protect against liquid and gas phased hazardous waste.

PROJECT SOLUTION:

- The use of a geomembrane was immediately thought of as the required secondary containment liner. These typical liners are commonly used as a liquid impermeable surface. However, the typical HDPE or LLDPE geomembranes are not suited for containing gas phased hazardous waste or other naturally occurring gases. The runoff for this facility would contain VOCs in the form of benzene, toluene, ethylbenzene, and xylene. All needed to be contained for proper environmental protection. To accomplish the task of liquid and gas phased containment, the designers relied on the use of the Absolute Barrier. This seven-layer coextruded lining system contains an outer core of polyethylene (PE) for liquid containment, just like a normal geomembrane. The special nature of this material lies within the core of its multilayered construction. Within the Absolute Barrier core lies a layer of EVOH (ethylene vinyl alcohol). EVOH is used widely as a barrier film in the food packaging and specialty containment industries.

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CASE STUDY:

- The use of EVOH as a geomembrane is new and it now allows designers and regulators the option to better contain both the liquid and gas phased hazardous waste on environmental sites. With the addition of EVOH, the Absolute Barrier® line of geomembranes can now protect against VOCs, methane, nauseous odors, and even Radon. Even better, the installation procedures for this special lining system are the same as common PE liners. With the use of the Absolute Barrier geomembrane system, the designers and owners of the 360 Degree Recycling facility were able to provide a best available practice (BAP) methodology. The decision to use Absolute Barrier not only ensured greater environmental performance, but better long-term site economics related to environmental responsibilities. They mitigated future groundwater concerns, conserved water resources, and reduced storm water runoff fees. And they did so by implementing an easy containment strategy for both liquid and gas phased wastes with the Absolute Barrier system.

PROJECT IMAGES:



Large prefabricated panels of Absolute Barrier® 25-mil evoh enhanced geomembrane, designed to meet the site's requirements



Installation of the secondary containment system