CASE STUDY

[MIDEL®]
SAFETY INSIDE

MIDEL eN 1215 chosen for fire safety to help protect Milwaukee urban substation

Milwaukee, Wisconsin, with a heritage dating back to the 1840s, is a city well known for its traditions of manufacturing and innovation. And like many other US cities, it is undergoing a revitalization of its densely populated, historic urban space, coupled with a realization of the limitations of its ageing electricity infrastructure.

In 2018, a substation project was outlined and developed, aimed at strengthening Milwaukee's downtown power grid, minimizing land use and preserving the profile of the historic buildings in the locale (the well-known 3rd Ward district).

That's how two transformers rated at 39/52/65 MVA, weighing 154,700 lb each, came to be installed 13 feet below street level beneath a seven-story mixed-use development now under construction. The planning of the transformer installations also indicated that the basement level, where the units would be installed, was below the water table.

Clearly, the whole substation plan required heightened levels of risk mitigation in order to make it viable. That's when MIDEL eN 1215 came into the equation.

MIDEL eN 1215 is a natural ester transformer insulating fluid. The manufacturer of the two transformers selected the fluid for its particular strengths:

- Fire safe with a K class rating and >300°C fire point
- Fully/readily biodegradable
- High degree of moisture tolerance (protecting the transformer solid insulation and thereby extending its lifetime)

"Milwaukee is a prime example of a mature, yet still expanding US city coming to terms with the energy demands of its growing downtown redevelopment. MIDEL eN 1215 delivered a safe and environmentally responsible solution"

- Anthony Coker, Senior VP, MIDEL Americas

Conventionally, substations such as the Milwaukee project might be expected to use mineral oil as the transformer insulating fluid. However, where the substation is close to a community's offices, shops, people and waterways, mineral oil simply cannot provide the necessary level of risk mitigation and peace of mind. Its potential flammability and poor rate of biodegradability (compared to ester fluids) would mean an unacceptable risk to life, property and the environment.

MIDEL eN 1215 is part of the wider range of MIDEL natural and synthetic ester transformer fluids. It is made from soybean crops, thus reinforcing its environmental credentials and suitability for a project aimed at demonstrating sustainability in urban infrastructure.

The substation is planned to be brought into service by the end of 2020 or early 2021 - another use of MIDEL in an urban substation that will help provide safer, greener and more reliable energy for urban consumers far into the future.