

# LIGHT CURING CIPP PROMISES BRIGHT INDUSTRY FUTURE

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Since being introduced by inventor Eric Wood in the 1970s, CIPP has been an exciting segment of the trenchless technology industry. It became a proven technical solution in the US during the late 1970s through the cooperation of the technology developers and providers and a progressive utility, the Washington Suburban Sanitation Commission.

While many utilities remain conservative and never utilise an emerging technical solution until it has been used by others for years, Washington Suburban Sanitation Commission (WSSC) took pride in identifying potential technologies and working with the developers and providers to make cured-in-place pipe (CIPP) work. The game changing solution was a major milestone that caused the pipe renewal industry to never be the same.

Trenchless Technology Center (TTC) Industry Advisory Board (IAB) Member and Reline America Executive Director of Business and Technology Development Mike Burkhard was a part of WSSC's research division during this period and witnessed the newly formed Insituform East's installation of a demonstration liner.

"The technology's positive impact on WSSC continues to this day," says Mr Burkhard.

## CIPP DEVELOPMENTS

The industry has seen CIPP move from non-pressure applications to pressure and varying diameters, distances, shapes and more. The curing process has developed alongside the technology, expanding from hot water to steam and on to light curing, including UV and LED.

However, light curing is not a relatively new process. In the early 1990s TTC was approached about the possibility of conducting long-term testing by a light curing CIPP technology provider as part of the Corps of Engineers Construction

Productivity Advancement Research program.

It is now reported that light curing CIPP has up to 80 per cent of the market in different countries in Europe and approximately 30 per cent in Japan. Evidently, CIPP has been a model of how continuous improvement and expanding the technical envelope should work.

## TTC RESEARCH

Since TTC was established in 1989, it has been supported in part by industry leaders from international firms who serve on the IAB. The IAB plays a pivotal role for TTC by providing financial support to provide leadership while accomplishing the mission of advancing the industry through research, education and technology transfer.

As a member of the IAB, Reline UV America has been a strong supporter of TTC since 2010 and its experience in the light curing CIPP development throughout North America will consistently be utilised. Earlier this year Mr Burkhard was recognised for his contribution to the trenchless technology industry when he received the Trenchless Technology Person of the Year award.

Back in 1998 Mr Burkhard, alongside Don Pleasants, initiated trenchless technology market research to identify innovations to introduce to the US marketplace. Brandenburg Managing Partner Christian Noll then introduced the two researchers to a spirally wound glass reinforced plastic product in Germany.

While the research indicated that the

technology was market ready for use throughout the US, the economic conditions were not right as utilities remained reluctant to pay a premium for UV cured CIPP over traditional thermal cured CIPP products.

By 2003 the economics seemed justifiable by utilities to invest in UV cured CIPP; by 2005 an agreement with Brandenburger was executed for the UV CIPP technology's exclusive North American rights.

## RELIN AMERICA ESTABLISHED

Reline America (RA) was established and opened for business in Virginia in 2006, and contractors installed the first liners in Pennsylvania, Tennessee and Texas in 2007. From the lessons learned from these initial installations, RA further developed both the liner manufacturing process and the installation equipment from 2008 through to 2012.

In addition, RA developed a large diameter liner machine that adjusted to various diameters from 27 to 54 inches (686 to 1,372 mm) while lowering set-up times and excluding numerous parts needed in original machine design. The installation equipment was completely redesigned with a view toward onsite equipment and liner automation.

## RELIN JOINT VENTURE

The Reline UV Group, which was recently established to provide better coordination, communication and sharing of continuous improvement ideas, now consists of four Alphasliner production and service point

companies: Reline Europe (RE); Reline America (RA); Reline Japan (RJ); Reline UV Asean (RAS); and Reline China (RC), a sales company.

Recently, RA signed a joint venture agreement with the Reline UV Group under the leadership of RE. Through Christian Noll – now President and founder of RE – RE acquired 50 per cent of RA. RA, in turn, now has access to the more extensive RE product line.

Over the past 10 years, RE has made a lot of technical improvements. RE's experience with the Alphasliner covers almost four generations while its UV equipment spans three. Production in 2019 is expected to be approximately 700 km of Alphasliner in diameters DN 150 to DN 1800.

RE transfers technical knowledge to local partners who have responsibility for daily operations. In addition, RE transfers its latest technology, including the Alphasliner1800H system together with its UV curing equipment REE4000, for rehabilitation of large diameter up to DN 1800 and WT up to 20 mm.

After conducting global market research, RE began implementing an international market development strategy in 2014 in regions where there is potential. Besides Europe, its target markets include North America, China, Japan, southeast Asia and now India, where a production facility will open by the end of 2019.

## FUTURE STEPS

The trenchless technology industry is at a critical point and poised to make major advancements, with light CIPP leading the way. Over the past 30 years the industry has witnessed amazing developments with technical solutions, supporting organisations/associations, asset management programs and more.

However, the industry is still lagging on the radar for many political and policy decision makers when it comes to infrastructure funding. TTC is confident this change will be witnessed throughout the next presidential election and passage of the American Water Infrastructure Act, which was passed by the US Congress in October 2018 and will be enforced by the US EPA.

However, the first step towards change

began on 2 April 2019 when leading light curing industry organisations responded to an invitation from Dr Iseley and Mr Burkhard to meet at TTC in Ruston, Louisiana – signifying the development of a partnership to address this industry segment's challenges.

The meeting additionally facilitated open discussions on issues facing the industry, rather than solely individual companies, and the result of the meeting was the formation of a Light Curing CIPP Working Group (LCCWG).

## LCCWG

The LCCWG's mission is to improve the design, installation, and operation of light curing CIPP systems through the creation of partnerships among utilities, researchers, designers and contractors. The group will monitor the developments and performance throughout the light curing CIPP industry.

By serving as an independent, non-commercial adviser to the light curing CIPP industry and maintaining relationships with the end users – such as municipalities, utilities, industries and departments of transportations – LCCWG will be a resource to advance the industry through continuous improvement.

The benefits of the LCCWG include:

- a team of experts that can objectively advise the end users on issues related to light curing CIPP systems
- the development of standards relating to design and installation of light curing CIPP systems
- joint research on light curing systems to resolve or clarify issues
- a better understanding of the needs of the end users/customers
- a spread of knowledge from findings among all stake holders.

The second LCCWG meeting was held on 21 July 2019 in the Vanderbilt University in Nashville, Tennessee in conjunction with the

ASCE UESI Pipelines Conference and all attendees emphasised the importance of training and educational programs, plus the necessity of establishing a certification program for the light curing CIPP.

In this meeting two committees were established: the LCC Specifications Committee and the LCC Training Committee. In October the LCCWG met at TTC for an additional meeting, held in conjunction with the TTC IAB meeting, where an additional committee was established: the LCC Third Party Testing Platform Committee.

The responsibility of the LCC Third Party Testing Platform Committee is to determine acceptable field samples that accurately reflect the in-host pipe finished product, proper sample prep, testing protocols and chain of custody documentation in a document available to the public.

## LCCWG INDUSTRY PARTNERS

So far, the LCCWG industry partners include AOC Aliancys, BKP-Berolina, C&L Water Solutions, Cosmic, Granite Inliner, Hammerhead, I.S.T., iMPREG, Insituform Technologies/Aegion, National Water Main Cleaning Company, Omega liner, Pipeline Renewal Technologies, Reline UV America and Saertex.

Through the involvement of Mr Burkhard, TTC became aware of just how rapidly the light curing CIPP market is expanding with much international participation, which drove the first meeting in April 2019 to determine how to assist. This development demonstrates the power of how the IAB drives trenchless technology industry development to stay on the cutting edge of the market developments by leading the way.

The next LCCWG meeting will be held in Indianapolis, Indiana in conjunction with the Water & Wastewater Equipment, Treatment and Transport Show 2020. 📍

If you are interested in TTC IAB membership benefits contact TTC Director Dr John Matthews at [matthews@latech.edu](mailto:matthews@latech.edu) or +1 318 257 2852.

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