



CSIRO bushfire tests confirm rural advantage for SURELINE[®]

BlueScope Steel's development of the SURELINE[®] solution delivers significant advantages to the rural areas within electricity networks through its flexible lightweight design and bushfire proof performance.

Mark Simpson, Sales and Supply Chain Manager said: "Although we knew there would be real benefits to authorities, it was important that we provided independent proof to meet rigid performance standards. We engaged the CSIRO and the Bushfire Co-operative Research Centre to undertake tests of the SURELINE[®] steel pole solution in a bushfire testing laboratory."





Above: SURELINE® power poles were subjected to a range of fire intensity levels during the tests.

The bushfire research team was headed by Justin Leonard, Project Leader of Bushfire Research at the CSIRO and Leader of the Bushfire CRC's project for the Protection of People and Property.

With 14 years of fire science experience, Justin has overseen tests of property and product fire performance based on Australian Standards. His team has been instrumental in developing safety systems for the Rural Fire Service, and in improving the scientific understanding of the attributes of bushfires.

Testing was carried out at the NSW Rural Fire Service Hot Fire Training Facility south of Mogo, NSW, using an open-air bushfire flame front simulator that allows repeatable testing of different materials in bushfire burn-over conditions. The flame front simulator is designed to accurately recreate bushfire flame characteristics such as temperature profiles and radiant heat flux, using a grid of liquid propane burners.

Tests were carried out on two SURELINE® cylindrical hot dip galvanized steel power poles fitted with identical cross arms. The poles were 12 metres in length with an outside diameter of 273mm and a wall thickness of 4.8mm. Both were fitted with powder coated steel sealed bottom caps, vented top caps and an in-ground corrosion protection system.

Test one - involved radiant heat exposure to simulate a bushfire flame front approaching. A line of four sets of three burners was set up five metres from the front of the SURELINE® power poles and involved pre-radiation and ground fuel attack.

Results released by the researchers indicate that SURELINE® steel poles continue to perform their function in the face of flame and heat generated by bushfire conditions.

When exposed to the bushfire passage involving flame immersion, radiant heat and ground fuel attack, both power pole systems maintained integrity and serviceability.



Test two - recreated bushfire immersion and was simulated by using three rows of six burners set back at 350mm, 1.85m and 3.35m from the front of the poles. The flame immersion burner stage produced vertical flames with a solid flame height of approximately 6m and flames intermittently reaching heights of 8-10m. Flames impinged directly on both poles.

When exposed to the bushfire passage involving flame immersion, radiant heat and ground fuel attack, both SURELINE® poles maintained integrity and serviceability.

Commenting on the test results, SURELINE® Sales and Supply Chain Manager, Mark Simpson said: "We are fortunate that the CSIRO has

Above: A bushfire flame front simulator allows repeatable testing in bushfire burn-over conditions.

The flame immersion burner stage produced vertical flames with a solid flame height of approximately 6m and flames intermittently reaching heights of 8-10m.



developed and gained considerable experience in conducting these bushfire tests, and we are very pleased with the results. The tests proved that SURELINE® steel poles continue to perform their function during and after bushfire conditions and the hot dip galvanized coating and steel are not damaged. Although the results are not surprising to us, it will enable us to deliver another important independent technical paper to the industry as part of our technical paper program.”

CSIRO – Australia’s Commonwealth Scientific and Industrial Research Organisation (CSIRO) is one of the world’s largest and most diverse scientific research institutions. With a staff of more than 6500 working from sites across the nation and around the globe, CSIRO is focused on providing new ways to improve quality of life and the economic, environmental and social performance of our industries. More information at www.csiro.au.

The Bushfire CRC – More than 30 partners in fire and land agencies in Australia and New Zealand working with CSIRO, universities and other research institutions on bushfire research.



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