

Composite Conductor Field Trial Summary Report: BPA- Pasco, WA

Installation Date June 2004
Field trial Location Pasco, WA, USA

Line Characteristics

Utility: Bonneville Power Administration
Point of Contact at Utility Jerry Reding, Principal Engineer
Installation Date: June 2004
Conductor Installed ACCR 675-TW Kcmil (381 mm²) trapezoidal
Length of line: 651 feet (198 meters)
Conductor diameter 0.902 inch, (22.9 mm)
Voltage 115 kV
Ruling span length 651 feet, (198 meters)
Structure Type Steel Lattice towers

Data output

(time stamped every 10 minutes)

- (1) Mechanical load cell
- (2) Ambient temperature,
- (3) Net radiation sensor
- (4) Wind anemometer and direction
- (5) MVA

Hardware

Termination Hardware Preformed Line Product THERMOLIGN™ Dead Ends TLDE-675-TW
Termination Hardware Alcoa ACCR compression dead ends B9085-C
Insulator type Ceramic
Dampers Alcoa Stockbridge Dampers – 1705-7
Terminals Alcoa Compression Terminal Connectors – B9102-D

Results and Measurements

- Document installation procedure
- Performance of trapezoidal ACCR conductors
- Response to high temperature
The 675TW ACCR replaces a Chuckar 1780 kcmil (976 mm²) ACSR. The objective is to get high thermal loads.

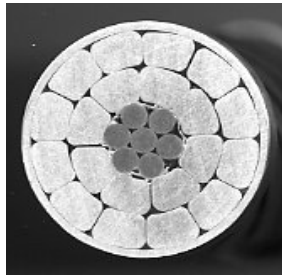
Photo Album



Overall view of the 115kV line



Ice Harbor hydro dam generator feeding the 115KV line – Photo obtained permission of USACE



675 TW ACCR



CAT-1 system installed on the line

High Temperature Operation

The maximum load on the line is expected to reach 1,300 Amps during the next year. The data will be analyzed as it becomes available

675 TW ACCR Specification

			<i>METRIC</i>
Designation		675 TW	
Stranding		20/7	
	kcmil	675	<i>381 mm²</i>
Diameter	in	0.902	<i>22.9 mm</i>
Total Area	in ²	0.591	<i>381 mm²</i>
Weight	lbs/linear ft	0.726	<i>1.080 kg/m</i>
Breaking Strength	000's lbs	22,487	<i>10,200 Kgf</i>
Modulus	msi	10.1	<i>70 GPa</i>
Thermal Elongation	ppm/C	17.7	<i>17.7 10⁻⁶°C</i>