

YEAR	VPP No.	TITLE	AUTHOR/S	PUBLICATION
2025	VPP 25-03	200 Years On: Sir Humphry Davy and Cathodic Protection	B. Ackland, K. Dylejko, W. Green, and M. Büchler	Corrosion Journal, Vol. 81, Issue 5, May 2025
	VPP 25-02	Design Durability Assurance Experiences on Infrastructure Projects in Australia	W. Green, D. McDonald, J. Kwong, C. Lim	Concrete International, V. 75, No. 5, May 2025
	VPP 25-01	Concrete Carbonation – A Review of Chemical Processes and Diffusion Mechanisms	C. Lim, D. McDonald, W. Green	Concrete in Australia, Volume 51, Issue 1, March 2025
2024	VPP 24-02	Durability Plans and Corrosion in Major Infrastructure Projects	D.B. McDonald, A. Lu, B. Eliasson	Corrosion & Prevention 2024 Conference, Cairns, 10-14 November 2024
	VPP 24-01	Wick Action Chloride Penetration Modelling of Reinforced Concrete	W Green, D McDonald, E Ariyachandra & A Jain	Concrete in Australia, Volume 50, Issue 3, September 2024
2023	VPP 23-02	Investigation of Accelerated Low Water Corrosion in a Marine Port Including the Effects of Cathodic Protection	A. Thompson, S. Masia, N. Cambourn, W. Green, M. Javed, J. Wood, E. Palombo & S. Wade	Corrosion & Prevention 2023 Conference, Perth, 12-16 November, 2023
	VPP 23-01	Options and Barriers to the Use of Sustainable Concrete	D McDonald, C Lim, J Kwong, W Green	Concrete Institute of Australia's Biennial National Conference, Perth, 10-13 September, 2023
2022	VPP 22-03	A Framework to Predict and Monitor the Degradation of Reinforced Concrete	A Liso, E Ariyachandra, A Chegenizadeh, W Green, M Salasi, M Iannuzzi	Corrosion & Prevention 2022 Conference, Newcastle, 5-8 June, 2022
	VPP 22-02	Chloride Durability of Reinforced Concrete Marine Structures	H Dyll, W Green & R Melchers	Corrosion & Prevention 2022 Conference, Newcastle, 5-8 June, 2022
	VPP 22-01	From Laboratory Tests to Field Trials: A Review of Cathodic Protection, Cathodic Protection and Microbially Influenced Corrosion	A Thompson, J Wood, E Palombo, W Green & S Wade	Biofouling, Volume 38, Issue 3, 2022
2021	VPP 21-02	Long Life Chloride Affected Concrete Structures – Some Corrosion Mechanistic Considerations	W Green, D McDonald & J Katen	Corrosion 2021 Conference, AMPP, Paper No. C2021-16919
	VPP 21-01	In-Service Assessment of Pile Wrapping Systems Using Sensors	W Green, J Katen, G Will & A Collison	Materials Performance, Vol. 60, No. 33, pp 27-31, March 2021
2020	VPP 20-03	Corrosion Sensors Led In-Service Performance Assessment of Steel Pile Wrapping/Jacketing Systems on Marine Structures in Australia	W Green, G Will, J Katen & A Collison	Corrosion 2020 Conference, NACE International, Paper No. C2020-14511
	VPP 20-02	Long Term (20+ Years) In-Service Performance of Concrete ICCP of Marine Wharf Structures in Australia	W Green, S Masia, N Cambourne & J Katen	Corrosion 2020 Conference, NACE International, Paper No. C2020-14510
	VPP 20-01	Steel Reinforcement Corrosion in Concrete - An Overview of Some Fundamentals	W Green	Corrosion Engineering, Science and Technology, Vol 55, No 4, pp 289-302, 2020

2019	VPP 19-04	Chloride Durability and Future Maintenance of a 40+ Year Marine Structure	W Green, J Ehsman, S Linton, N Cambourn & S Masia	Concrete in Australia, Volume 45, Issue 4, December 2019 (Concrete Institute of Australia 2019 Best Paper Award)
	VPP 19-03	20+ Years Performance of ICCP of Marine Wharf Concrete Structures	W Green, S Masia, N Cambourn & J Katen	Corrosion & Prevention 2019 Conference, Melbourne, 24-27 November 2019 (Australasian Corrosion Association 2022 Best Case Study Award)
	VPP 19-02	Chloride Durability and Future Maintenance of a 40+ Year Marine Structure	W Green, J Ehsman, S Linton, N Cambourn & S Masia	Concrete 2019 Conference, Sydney, 8-11 September 2019
	VPP 19-01	'Do Nothing' and Patch Repair (without Anodes): Engineered Maintenance Experiences of Marine Concrete Structures	W Green, S Linton, J Katen & J Ehsman	Corrosion and Materials, Vol 44, No 3, pp 60-67, August 2019
2018	VPP 18-04	In-Situ Corrosion Protection Performance Assessment of Petrolatum-Based Pile Wrapping Systems at the Tasman Bridge	W Green, G Will, A Percy & R Cassidy	Corrosion and Prevention 2018 Conference, Adelaide, 12-14 November, 2018
	VPP 18-03	'Do Nothing' and Patch Repair (without Anodes) Engineered Maintenance Experiences of Marine Concrete Structures	W Green, S Linton, J Katen & J Ehsman	Corrosion and Prevention 2018 Conference, Adelaide, 12-14 November, 2018
	VPP 18-02	Kingsford Smith Drive Project Brisbane - Durability Assessment and Planning Experiences	W Green, T Dunne & N Ayres	fib Congress 2018, Melbourne, 7 - 11 October 2018
	VPP 18-01	Durability of Reinforced Concrete Marine Structures up to 109 Years	J Ehsman, R Melchers & W Green	fib Congress 2018, Melbourne, 7 - 11 October 2018
2017	VPP 17-07	Modelling the Electrokinetics of Concrete Steel Reinforcement	H Flitt, G Will & W Green	Corrosion & Prevention 2017, Sydney, 12-15 November, 2017
	VPP 17-06	What Does 'CP' Mean Now for Steel in Concrete?	W Green, J Katen & B Dockrill	Corrosion & Prevention 2017, Sydney, 12-15 November, 2017
	VPP 17-05	Durability Assurance on Major Rail Infrastructure Projects	W Green, E Nye & B Eliasson	16th Australasian Tunnelling Conference 2017, Sydney, 30 October - 1 November, 2017
	VPP 17-04	Durability Assurance Experiences on a Major Road Upgrade Infrastructure Project	W Green, P Statham & B Eliasson	Concrete 2017, Adelaide, 22-25 October, 2017
	VPP 17-03	Bringing Collaborative Research Solutions to the Concrete Industry: Australian Centre for Infrastructure Durability (ACID)	F Collins & W Green	Concrete 2017, Adelaide, 22-25 October, 2017
	VPP 17-02	Up-to-Date Overview of Aspects of Steel Reinforcement Corrosion in Concrete	W Green, F Collins & M Forsyth	(In) Reinforced Concrete Corrosion, Protection, Repair and Durability, (Eds) W K Green, F G Collins and M A Forsyth, Australasian Corrosion Association Inc., Melbourne

	VPP 17-01	Acidification Induced Deterioration of Concrete Cathodic Protection Systems and its Management	W Green & J Katen	Corrosion & Materials, Vol 42, No 2, pp 42-47, May 2017
2016	VPP 16-05	Acidification Induced Deterioration of Concrete Cathodic Protection Systems and its Management	W Green, S Windred & J Katen	Corrosion & Prevention 2016, Auckland, New Zealand, 13-16 November, 2016
	VPP 16-04	Experiences with the Design of Repair and Protection Measures for Concrete Structures	W Green & B Dockrill	Corrosion & Materials, Vol 41, No 4, November, 2016, pp 77-85
	VPP 16-03	Conventional Concrete Patch Repair of Bridges	W Green	Materials Performance, Vol 55, No 11, November, 2016, pp 58-61
	VPP 16-02	Structural Risk Assessment of Corroding Infrastructure	B Dockrill, R Melchers, B Eliasson, S Linton & C Herron	Sustainability in Public Works Conference, Melbourne, 24-26 August, 2016
	VPP 16-01	Experiences with the Design of Repair & Protection Measures for Concrete Structures in Australia	W Green & B Dockrill	NACE International, Concrete Service Life Extension Conference, Orlando, Florida, 23-25 May, 2016
	VPP 15-05	Structural Risk Assessment of Corroding Infrastructure	B Dockrill, R Melchers, B Eliasson, S Linton & C Herron	Corrosion and Prevention 2015 Conference, Adelaide, 15-18 November, 2015
2015	VPP 15-04	Electrokinetic Review and Appraisal of Steel Reinforcement Corrosion in Concrete	H Flitt, G Will & W Green	Corrosion and Prevention 2015 Conference, Adelaide, 15-18 November, 2015
	VPP 15-03	Concrete Durability Performance Testing - The Approach Adopted in a Concrete Institute of Australia Recommended Practice	W Green & F Papworth	Concrete 2015 Conference, Melbourne, 30 August – 2 September, 2015
	VPP 15-02	PF Thompson - Australia's Pioneer in Corrosion Research and Education	W Green & B Hinton	Corrosion & Materials, Vol 40, No 4, August, 2015, pp 24-31
	VPP 15-01	Structural Failure Management of Corroding Reservoir Infrastructure	B Dockrill, W Green & B Eliasson	Journal of the Australian Water Association, May, 2015, pp 33-35
	VPP 14-02	Performance Tests to Assess Concrete Durability - An Approach Formalised in a Concrete institute of Australia Recommended Practice	F Papworth & W Green	2nd International Congress on Durability of Concrete, JW Marriott Hotel Aerocity, New Delhi, India, 4 – 6 December, 2014
2014	VPP 14-01	Electrochemistry and It's Relevance to Reinforced Concrete Durability, Repair & Protection (P F Thompson Memorial Lecture)	W Green	Corrosion and Prevention 2014 Conference, Darwin, 22-24 September, 2014
	VPP 13-04	Long-Term Asset Management and Corrosion Monitoring with Sensors	M Hales, G Will, W Green & B Dockrill	Corrosion and Prevention 2013 Conference, Brisbane, 10-13 November, 2013
2013	VPP 13-03	Concrete Repair and Protection - Overlooked Issues	W Green, B Dockrill & B Eliasson	Corrosion and Prevention 2013 Conference, Brisbane, 10-13 November, 2013
	VPP 13-02	Engineered Maintenance Design of Newcastle Port Assets	W Green, S Bacon & B Dockrill	Coasts & Ports 2013 Conference, Manly, 11-13 September, 2013

	VPP 13-01	Corrosion Induced Failure of Vertical Stressing Bars in Concrete Water Reservoirs	B Dockrill, B Eliasson & W Green	Water Industry Operations Conference and Exhibition 2013, Bendigo, 4-5 September, 2013
2012	VPP 12-05	Electrochemical Chloride Extraction Site Trial of Reinforced Concrete Bridge Substructure Elements	M Moore, W Green & B Eliasson	Corrosion and Prevention 2012 Conference, Melbourne, 11-14 November, 2012
	VPP 12-04	A Review of Sacrificial Anode and Hybrid Cathodic Protection Systems for the Mitigation of Concrete Reinforcement Corrosion	L Holloway, W Green, P Karajayli & N Birbilis	Corrosion and Prevention 2012 Conference, Melbourne, 11-14 November, 2012
	VPP 12-03	The Use of Electrical Resistance Corrosion Sensors to Assess Infrastructure Protective Systems	M Hales, S Wade, W Green, G Will, B Dockrill & A Trueman	Corrosion and Prevention 2012 Conference, Melbourne, 11-14 November, 2012
	VPP 12-02	Engineered Maintenance of Port Wharf Structures	S Bacon, W Green & B Dockrill	Port Technology International, 55th Edition, pp 113-116
	VPP 12-01	Engineered Maintenance of Newcastle Port Wharf Structures	W Green, S Bacon & B Dockrill	Corrosion & Materials, August, 2012, pp 36-40
2011	VPP 11-03	10+ Years Performance of Concrete Cathodic Protection Systems Marine Wharf Substructures	W Green, S Masia & B Dockrill	18th International Corrosion Congress, International Corrosion Council, Perth, 20-24 November, 2011
	VPP 11-02	Steel Pile MIC Management in Newcastle Port	W Green, S Masia & B Dockrill	Symposium of Microbiologically Influenced Corrosion, Australian Corrosion Association Inc, Melbourne Marriott Hotel, Melbourne, 10 & 11 August, 2011
	VPP 11-01	Case Studies of Concrete Repair and Strengthening of Coal Storage Silos in Eastern Australia	B Dockrill & W Green	Corrosion 2011 Conference, Paper 11015, NACE International, Houston, Texas, USA, 13-17 March, 2011
2010	VPP 10-02	Concrete CP of Marine Wharf Structures - Case Study Experiences in Newcastle Port	W Green, S Masia, C Garnham & B Dockrill	Corrosion and Prevention 2010 Conference, Australasian Corrosion Association Inc., Adelaide, 14-17 November, 2010
	VPP 10-01	ALWC Management of Newcastle Port Structures	W Green, S Masia, C Garnham, D Purser & B Dockrill	Corrosion and Prevention 2010 Conference, Australasian Corrosion Association Inc., Adelaide, 14-17 November, 2010
2009	VPP 09-03	Durability Planning for Australian Seawater Desalination Plants	W Green, G Moore & D Nicholas	Corrosion & Prevention 2009 Conference, Australasian Corrosion Association Inc., Coffs Harbour, 15-18 November, 2009
	VPP 09-02	Concrete Coal Silos Assessment, Remediation and Strengthening	B Dockrill, W Green & G Cooke	Corrosion & Prevention 2009 Conference, Australasian Corrosion Association Inc., Coffs Harbour, 15-18 November, 2009

	VPP 09-01	Durability Assessment, Design and Planning - Port Botany Expansion Project	W Green, G Riordan, G Richardson & W Atkinson	Concrete Solutions 09, 24th Biennial Conference of the Concrete Institute of Australia, Luna Park, Sydney, 17-19 September, 2009
2006	VPP 06-01	Risk Management a Consultants Approach to Risk in Repair and Refurbishment Projects	T Womack & B Eliasson	Corrosion & Prevention 2006 Conference, Australasian Corrosion Association Inc, Hobart, 19-22 November, 2006
2003	VPP 03-01	Changes in Repair and Protection of Reinforced Concrete	W Green	Corrosion & Materials, Vol 28, No 4, pp 8 & 9, August, 2003
2001	VPP 01-05	Lynch's Bridge A Case Study in the Cathodic Protection of Reinforced Concrete	W Green, F Andrews-Phaedonos, G Brewster & D McCormick	Corrosion & Prevention 01 Conference, Australasian Corrosion Association Inc., Newcastle, 18-21 November, 2001
	VPP 01-04	Australasian Experiences with Cathodic Protection of Concrete Marine Structures	W Green	Coasts & Ports 2001, 15th Australasian Coastal and Ocean Engineering Conference and 8th Australasian Port and Harbour Conference, Marriott Resort, Gold Coast, 25-28 September, 2001
	VPP 01-03	Sacrificial Cathodic Protection of Reinforced and Prestressed Concrete Structures Using a Thermally Sprayed Aluminium Alloy	W Green & S Daily	Concrete 2001 Conference, Concrete Institute of Australia, Perth, 11-14 September, 2001
	VPP 01-02	Corrosion Monitoring and Cathodic Prevention to Achieve Durable Concrete Structures in Chloride Environments	W Green	Cathodic Protection of Concrete Structures Seminar, Corrpro Companies (NZ) Ltd, Wellington, New Plymouth, Auckland, 2, 3 & 5 April, 2001
	VPP 01-01	Australasian Experiences with Cathodic Protection of Concrete Structures	W Green	Cathodic Protection of Concrete Structures Seminar, Corrpro Companies (NZ) Ltd, Wellington, New Plymouth, Auckland, 2, 3 & 5 April, 2001
2000	VPP 00-01	Non-Destructive Determination of the Sheet Resistance of Conductive Coating Anodes on Concrete	G Glass, S Field & W Green	Anti-Corrosion and Materials, Vol. 47, No. 1, pp 5-10, 2000
1999	VPP 99-03	A Review of Concrete Corrosion Inhibitors	A Peek, M Ali & W Green	Corrosion and Prevention 99 Conference, Australasian Corrosion Association Inc., Sydney, 22-24 November, 1999 (Australasian Corrosion Association 2000 David Whitby Review Paper Award Winner)
	VPP 99-02	Five Year Performance of a Wharf Concrete Cathodic Protection System in Australia	W Green, M Ali & R McGee	The Arabian Journal for Science and Engineering, Vol. 24, No. 2B, pp 229-242, October, 1999

	VPP 99-01	Ulladulla Harbour Fisherman's Jetty Installation and Performance of a Concrete Cathodic Protection System	M Ali, W Green & T Young	Coasts & Ports '99, 14th Australasian Coastal and Ocean Engineering Conference and 7th Australasian Port and Harbour Conference, Perth, 14-16 April, 1999
1998	VPP 98-03	Performance Assessment of Chloride Barrier Coatings for Concrete in Marine and/or Saline Environments	A Peek, W Green, F Andrews-Phaedonos & D Payne	Corrosion and Prevention 98 Conference, Australasian Corrosion Association Inc., Hobart, 23-25 November, 1998
	VPP 98-02	Five Year Performance of the Grassy Wharf Concrete Cathodic Protection System	R McGee, W Green & M Ali	Australian Journal of Structural Engineering, Vol. SE1, No. 1, pp 57-65, 1998
	VPP 98-01	Condition Assessment and Maintenance of Wharf Facilities within Newcastle Harbour	D Layzell, M Moore, M Ali & W Green	2nd RILEM Conference on Rehabilitation of Structures, Melbourne, 21-23 September, 1998
1997	VPP 97-03	Assessment of Protective Coatings for Concrete Bridges in Marine or Saline Environments	F Andrews-Phaedonos, F Collins, W Green & A Peek	Corrosion and Prevention 97 Conference, Australasian Corrosion Association, Brisbane 9-12 November, 1997 (Australasian Corrosion Association 1998 Arthur C Kennett Award winning paper)
	VPP 97-02	General Theory and Trials of Electrochemical Realkalisation & Desalination Repair Systems	W Green	Concrete Institute of Australia Technical Meetings, Sydney, 23 April, Brisbane, 1 May, 1997
	VPP 97-01	Grassy Wharf Five Years On - The Performance of a Cathodic Protection System	R McGee, W Green & M Ali	Concrete 97 Conference, Concrete Institute of Australia, Adelaide, 14-16 May, 1997
1996	VPP 96-04	Engineered Maintenance of Civil Port Structures	F Collins, W Green & G Spiliopoulos	Australian Civil/Structural Engineering Transactions, Vol. CE38, No. 2, 3 & 4, pp 59-64, 1996
	VPP 96-03	Influence of Surface Treatments on Reinforcement Corrosion Rates in a Carbonated Building in Western Australia	W Green, A Peek & P Trinder	13th International Corrosion Congress, Melbourne, 25-29 November, 1996
	VPP 96-02	Assessment & Management of a Marine Structure Affected by ASR	M Davies, W Grace, W Green & F Collins	10th International Conference on AAR in Concrete, Melbourne, 19-23 August, 1996
	VPP 96-01	Alkali-Aggregate Reaction in Australia	A Shayan, W Green & F Collins	10th International Conference on AAR in Concrete, Melbourne, 19-23 August, 1996
1995	VPP 95-06	Testing of Anticarbonation Coatings for Concrete	A Peek & W Green	Concrete in Australia, Vol. 21, No. 4, December, 1995
	VPP 95-05	Recent Developments in Cathodic Protection Systems for Reinforced Concrete	J Grapiglia & W Green	Corrosion & Prevention 95 Conference, Australasian Corrosion Association, Perth, 12-15 November, 1995
	VPP 95-04	Engineered Maintenance of Civil Port Structures	F Collins, W Green & G Spiliopoulos	12th Australasian Coastal & Engineering Conference and the 5th Port & Harbour

				Conference, The Carlton Radisson Hotel, Melbourne, 28 May-2 June, 1995 (1995 PIANC Young Author Award Winning Paper)
	VPP 95-03	Recent Developments in Cathodic Protection Systems	M Nahas & W Green	Concrete Institute of Australia, WA Branch, Annual Technology Seminar "What's New in Concrete", Perth, May, 1995
	VPP 95-02	Water Permeability Testing of Concrete	F Collins & W Green	Concrete in Australia, Vol 21, No 1, April, 1995
	VPP 95-01	Long Term Performance of a Conductive Coating Cathodic Protection System on a Reinforced Concrete Structure in WA	W Green, M Nahas & J Grapiglia	Corrosion Australasia, Vol 20, No 1, pp 10-13, February, 1995 (Australasian Corrosion Association 1995 Arthur C Kennett Award Winning Paper)
1994	VPP 94-05	Testing & Modelling to Assess Early Age Thermal Cracking Risk	F Collins & W Green	Concrete in Australia, Vol 20, No 4, December, 1994
	VPP 94-04	Chloride Ion Resistance Testing	W Green & F Collins	Concrete in Australia, Vol 20, No 3, September, 1994
	VPP 94-03	Reinforcement Corrosion Rate by the Polarisation Resistance Technique	W Green & J Grapiglia	Concrete in Australia, Vol 20, No 2, June, 1994
	VPP 94-02	Design & Specification of Durable Concrete	W Green	Concrete Institute of Australia (WA Branch) and Institute of Engineers Australia (SW Group) Joint Seminar, High Performance Concrete, Bunbury, 27 May, 1994
	VPP 94-01	Electrochemical Potential Measurements of Steel in Concrete	W Green & F Collins	Concrete in Australia, Vol 20, No 1, April, 1994
1993	VPP 93-01	Electrochemical Changes in Chloride - Contaminated Reinforced Concrete Following Cathodic Polarisation	W Green, S Lyon & J Scantlebury	Corrosion Science, Vol 35, Nos 5-8, pp 1627-1631, 1993
1992	VPP 92-05	Slag, Silica Fume & Fly Ash in WA - A Review	W Grace & W Green	Cement and Concrete Association Seminar, "Concrete Performance The Role of Blended Cements", Perth, 29 September, 1992
	VPP 92-03	The Performance of Cathodic Protection Systems on Reinforced Concrete Structures in Hot Climates	W Green, D Pocock & S Lee	3rd International RILEM Conference, Concrete in Hot Climates, Torquay, UK, 21-24 September, 1992
	VPP 92-02	Performance Related Evaluation of Cathodic Protection Systems Applied to RC Structures	W Green & J Slatter	RILEM/CSIRO/ACRA Conference, Rehabilitation of Concrete Structures, Melbourne, VIC, 31 August - 2 September, 1992
	VPP 92-01	New Mechanism for Concrete Deterioration	W Grace & W Green	Engineers Australia, 12th June, 1992

1991	VPP 91-04	Long Term Performance of Cathodic Protection Systems on Reinforced Concrete Structures	G Glass, W Green & J Chadwick	UK Corrosion 91 Conference, Manchester, UK, 22-24 October, 1991
	VPP 91-03	Practical Aspects of Concrete Repair & Cathodic Protection	W Green & D Pocock	The Corrosion of Steel in Concrete COMETT Course, University of Oxford, UK, 25-27 September, 1991
	VPP 91-02	Electrochemical Rehabilitation of Concrete: Chloride Extraction & Realkalisation	W Green & K Treadaway	The Corrosion of Steel in Concrete COMETT Course, University of Oxford, UK, 25-27 September, 1991
	VPP 91-01	Performance Related Evaluation of Cathodic Protection Criteria for Reinforced Concrete Structures	G Glass, W Green & J Chadwick	32nd Corrosion Science Symposium, UMIST, Manchester, UK, 18-20 September, 1991
1990	VPP 90-03	Deterioration of Concrete Due to Exposure to Ammonium Sulphate	F Collins & W Green	'Concrete for the Nineties' Conference, Leura, September, 1990
	VPP 90-02	Laboratory Evaluation Testing of Repair Materials & Protective Coatings	W Green	Polymers and Building Technology Seminar, WA Branch, Royal Australian Chemical Institute, Perth, April, 1990
	VPP 90-01	Reinforcement Corrosion, Repair Materials & Protective Coating	W Green	Polymers and Building Technology Seminar, WA Branch, Royal Australian Chemical Institute, Perth, April, 1990
1988	VPP 88-02	Evaluation of Coatings as Carbonation Barriers for Reinforced Concrete	W Green	Conference 28, Australasian Corrosion Association, Perth, November, 1988
	VPP 88-01	Measurement of Steel Corrosion Rates in Concrete	W Green, H Hughes & H Linge	Conference 28, Australasian Corrosion Association, Perth, November, 1988
1987	VPP 87-01	Concrete Penetrability	F Papworth, W Green	Paper presented to the Concrete Panel, Western Australian Institute of Engineers, Perth, 1987