



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Summary Record of Proceedings and Decision

In the Matter of

Applicant Ontario Power Generation Inc.

Subject Application to Renew the Power Reactor
Operating Licence for the Darlington Nuclear
Generating Station

**Public Hearing
Dates** August 19, 2015 and November 2 to
November 5, 2015

e-Doc 4898684 (Word)
e-Doc 4908897 (PDF)

Canada

SUMMARY RECORD OF PROCEEDINGS

Applicant: Ontario Power Generation Inc.

Address/Location: 700 University Avenue, Toronto, Ontario M5G 1X6

Purpose: Application to renew the Nuclear Power Reactor Operating Licence for the Darlington Nuclear Generating Station

Application received: December 13, 2013 and January 30, 2015

Dates of public hearing: August 19, 2015 and November 2 to 5, 2015

Location: Part 1 (August 19, 2015):
Canadian Nuclear Safety Commission (CNSC) Public Hearing Room, 280 Slater St., 14th Floor, Ottawa, Ontario

Part 2 (November 2-5, 2015):
Hope Fellowship Church, 1685 Bloor Street, Courtice, Ontario

Members present: M. Binder, Chair
R. J. Barriault D. D. Tolgyesi
A. Harvey R. Velshi
M. J. McDill

Secretary: M.A. Leblanc

Recording Secretaries: S. Dimitrijevic and M. Young

Senior General Counsel: L. Thiele

Applicant Represented By	Document Number
• J. Lyash, President and Chief Executive Officer	
• G. Jager, President, OPG Nuclear and Chief Nuclear Officer	CMD 15-H8.1
• B. Duncan, Senior Vice President, Darlington Nuclear	CMD 15-H8.1A
• D. Reiner, Senior Vice President, Nuclear Projects	CMD 15-H8.1B
• L. Swami, Senior Vice President, Decommissioning and Nuclear Waste Management	CMD 15-H8.1C
• S. Woods, Senior Vice President, Nuclear Engineering and Chief Nuclear Engineer	
• R. Manley, Director, Nuclear Regulatory Affairs & Stakeholder Relations	
• J. Vecchiarelli, Manager, Nuclear Safety and Technology Department	
• K. Powers, Director, Corporate Relations and Communications	

<ul style="list-style-type: none"> • R. McCalla, Acting Vice President, Environment Department • P. Nadeau, Vice President, Security and Emergency Services • B. Fichman, Senior Manager, Computer and Control Design • J. Wong, Senior Manager, Cyber Security 		
CNSC staff		Document Number
<ul style="list-style-type: none"> • R. Jammal • B. Howden • F. Rinfret • R. Richardson • P. Thompson • C. Ducros • K. Francis • A. McAllister • S. Demeter • M. Couture • G. Frappier • L. Sigouin • D. Desjardins 	<ul style="list-style-type: none"> • K. Heppell-Masys • C. Harwood • A. Viktorov • G. Latouche • S. Karkour • R. Awad • E. Fortier • A. Du Sautoy • J. Jin • K. Glenn • G. Lamarre • M. Beaudette 	<p>CMD 15-H8 CMD 15-H8.A CMD 15-H8.B CMD 15-H8.C CMD 15-H8.D</p>
Intervenors		Document Number
See appendix A		
Others		
<ul style="list-style-type: none"> • Environment Canada, represented by N. Ali and D. Kim • Fisheries and Oceans Canada, represented by J. Wright, T. Hoggarth and S. Eddy • Natural Resources Canada, represented by J. Adams • Office of the Fire Marshal and Emergency Management, represented by T. Kontra, D. Nodwell and A. Suleman • Ontario Ministry of Transportation, represented by M. Morton • Health Canada, represented by B. Ahier • Australian Radiation Protection and Nuclear Safety Agency, represented by S. Solomon and G. Hirth 		

Licence: Renewed

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INTRODUCTION

1. Ontario Power Generation Inc. (OPG) has applied to the Canadian Nuclear Safety Commission¹ for the renewal of the Nuclear Power Reactor Operating Licence (PROL) for its Darlington Nuclear Generating Station (NGS) located in the Municipality of Clarington, ON. The nuclear facility consists of four CANDU pressurized heavy water reactors and a tritium removal facility. The site is also home to the Darlington Waste Management Facility, which became operational in 2008 and is subject to a separate Class 1B Waste Facility Operating Licence (WFOL). The WFOL was renewed by the Commission in 2013 for a period of 10 years.
2. OPG's licence renewal application includes the proposed mid-life refurbishment of the four Darlington NGS reactors to extend the station's life for an additional 30 years. This refurbishment is planned as a multi-year program to enable the replacement of life-limiting components such as fuel channels, and to make safety improvements to the plant, programs, and processes. In 2013, the Commission rendered a decision on the environmental assessment (EA) of the proposed refurbishment and continued operation of the Darlington NGS, and concluded that the proposed project was not likely to cause significant adverse environmental effects, taking into account mitigation measures identified in the EA Screening Report². At the same time, the Commission renewed the Darlington NGS PROL for a period of 22 months to allow OPG sufficient time to complete the necessary studies for the proposed refurbishment outages. This PROL was set to expire on December 31, 2014³.
3. At the request of OPG, to allow additional time to provide more comprehensive documentation, reflect new CNSC expectations relative to probabilistic safety assessment and facilitate public engagement at the hearing, the PROL was subsequently renewed by the Commission for a period of one year, so that the current operating licence, PROL 13.01/2015, expires on December 31, 2015⁴. In the current application, OPG requested a renewal of the licence for a period of 13 years, to cover life extension activities including refurbishment of the reactors. In support of the licence application, OPG has completed an Integrated Safety Review, Global Assessment Report, and established parameters for the Integrated Implementation Plan in accordance with CNSC regulatory document RD-360, *Life Extension of Nuclear Power Plants*.
4. After reviewing the application and OPG's past performance, as well as information submitted in supporting documents, CNSC staff recommended that the Commission

¹ The *Canadian Nuclear Safety Commission* is referred to as the "CNSC" when referring to the organization and its staff in general, and as the "Commission" when referring to the tribunal component.

² Refer to the Record of Proceedings and Reasons for Decision on the Environmental Assessment Screening Regarding the Proposal to Refurbish and Continue to Operate the Darlington Nuclear Generating Station in the Municipality of Clarington, Ontario, hearing date December 3 to 6, 2012.

³ Refer to the Record of Proceedings and Reasons for Decision on the Application to renew the Power Reactor Operating Licence for the Darlington Nuclear Generating Station, hearing date December 3 to 6, 2012.

⁴ Refer to the Record of Proceedings and Reasons for Decision on the Application to Amend the Power Reactor Operating Licence for the Darlington Nuclear Generating Station, hearing date July 23, 2014.

renew the PROL for a period of 10 years, and include a condition requiring OPG to implement a periodic safety review (PSR). CNSC staff was of the view that the recommended transition to a 10-year licence and introduction of the licence condition related to the PSR was in line with the international practice of longer licence terms. Many intervenors recommended a shorter licence period, expressing concerns that a longer licence would reduce opportunities for public input.

Issue

5. In considering the application, the Commission was required to decide, pursuant to subsection 24(4) of the *Nuclear Safety and Control Act*⁵ (NSCA):
 - a) if OPG is qualified to carry on the activity that the licence would authorize; and
 - b) if, in carrying on that activity, OPG will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.
6. The Commission was also required to decide whether to authorize OPG to operate the Darlington NGS Units 1-4 beyond 210,000 equivalent full-power hours (EFPH) up to the proposed refurbishment outages, to a maximum of 235,000 EFPH.

Public Hearing

7. The Commission, in making its decision, considered information presented for a public hearing held on August 19, 2015 in Ottawa, ON and November 2 to 5, 2015 in Courtice, ON. The public hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*⁶. During the public hearing, the Commission considered written submissions and heard oral presentations from OPG (CMD 15-H8.1, CMD 15-H8.1A, CMD 15-H8.1B and CMD 15-H8.1C) and CNSC staff (CMD 15-H8, CMD 15-H8A, CMD 15-H8B, CMD 15-H8C and CMD 15-H8D). The Commission also considered oral and written submissions from 283 intervenors (see Appendix A for a detailed list of interventions). Thirteen additional requests to intervene were received after the deadline and were denied. Two requests were denied in accordance with Rule 19 of the *CNSC Rules of Procedure*. The hearing was webcast live via the CNSC website, and video archives are available for a three-month period following the release of the decision.
8. Up to \$75,000 in funding to participate in the licence renewal process was made available to Aboriginal groups, not-for-profit organizations and members of the public

⁵ Statutes of Canada (S.C.) 1997, chapter (c.) 9.

⁶ Statutory Orders and Regulations (SOR)/2000-211.

through the CNSC's Participant Funding Program. A Funding Review Committee, independent of the CNSC, recommended that up to \$73,162.48 in participant funding be provided to eight applicants who were required, by virtue of being in receipt of the funding, to submit a written intervention and make an oral presentation at the public hearing.

9. On August 19, the Canadian Environmental Law Association (CELA) submitted a Request for Ruling, on its own behalf and on behalf of other allied organizations, asking that the Commission require that CNSC staff release the results of the *Study of Consequences of a Hypothetical Severe Nuclear Accident and Effectiveness of Mitigation Measures* (also known as the SARP report), by September 15, 2015. The CNSC made available, on August 21, the final version of the study. As was indicated in an August 26, 2015 letter of response to CELA, the Commission was satisfied that this addressed the request.

Mandate of the Commission

10. Several intervenors expressed their views about the operation and refurbishment of the Darlington NGS in relation to energy policy. The Commission notes that it is the Ontario provincial government that must address fundamental energy policy questions. The CNSC does not have this statutory authority, nor will it consider questions that are of a political nature. If the Ontario provincial government decides that nuclear power is part of its energy plan, the role of the CNSC is to ensure that it is done safely.

DECISION

11. Based on its consideration of the matter, the Commission concludes that OPG is qualified to carry on the activity that the licence will authorize. The Commission is of the opinion that OPG, in carrying on that activity, will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed. Therefore,

the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews the Nuclear Power Reactor Operating Licence issued to Ontario Power Generation Inc. for its Darlington Nuclear Generating Station located in the Municipality of Clarington, Ontario. The renewed licence, PROL 13.00/2025, is valid from January 1, 2016 until November 30, 2025.

the Commission authorizes OPG to operate the Darlington NGS Units 1-4 beyond 210,000 equivalent full power hours up to the proposed refurbishment outages, to a maximum of 235,000 equivalent full power hours.

12. The Commission includes in the licence the conditions as recommended by CNSC staff

in CMD 15-H8, with the following modification:

Licence condition 3.4 is modified from

The licensee shall prepare and conduct a periodic safety review in support of its subsequent power reactor operating licence application.

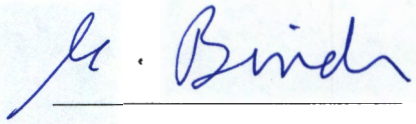
to

*The licensee shall **implement** a periodic safety review in support of its subsequent power reactor operating licence application.*

13. With respect to licence condition 3.2, the Commission delegates the authority for consent to restart a reactor after a serious process failure to the following CNSC staff:
 - Director, Darlington Regulatory Program Division;
 - Director General, Directorate of Power Reactor Regulation; and
 - Executive Vice-President and Chief Regulatory Operations Officer.
14. With respect to licence condition 15.4, the Commission delegates the authority to remove regulatory hold points for the return to service of each unit undergoing refurbishment to the Executive Vice President and Chief Regulatory Operations Officer.
15. The Commission notes that CNSC staff can bring any matter to the Commission as applicable. The Commission directs CNSC staff to inform the Commission on an annual basis of any changes made to the Licence Conditions Handbook.
16. With this decision, the Commission directs CNSC staff to provide annual regulatory oversight reports on the performance of the Darlington NGS and on the status of the refurbishment project and emergency planning, as part of the CNSC's annual *Regulatory Oversight Report for Canadian Nuclear Power Plants*. CNSC staff shall present these reports at public proceedings of the Commission. The Commission requests that CNSC staff provide updates on the setting of emission limits and effluent discharge limits as part of CNSC staff's regular reporting to the Commission. The Commission also requests that CNSC staff provide an update to the Commission on the report from CANDU Owners Group on issues raised by an intervenor, once the report is finalized.
17. The Commission expects updates from OPG on the status of the refurbishment project following the return to service of each reactor unit. Furthermore, the Commission directs OPG and CNSC staff to provide a more comprehensive update to the Commission on the status of the refurbishment project following the return to service of the first reactor unit or by no later than the mid-term of the licence period. This update will be considered in a public proceeding of the Commission, with public participation. The Commission looks forward to public participation and is of the view that the annual *Regulatory Oversight Report for Canadian Nuclear Power Plants* and

the more comprehensive update to the Commission after the return to service of the first reactor unit or at the mid-term of the licence period will provide opportunities for interested persons to participate in Commission public proceedings.

18. The detailed findings of the Commission will be presented in a comprehensive Record of Proceedings, including Reasons for Decision, to be published at a later date.



Michael Binder
President,
Canadian Nuclear Safety Commission

DEC 23 2015

Date

Appendix A – Intervenors

Intervenors	Document Number
Canadian Environmental Law Association, represented by C. Yick, E. Stahl and T. McClenaghan	CMD 15-H8.2 CMD 15-H8.5 CMD 15-H8.5A CMD 15-H8.5B
Lake Ontario Waterkeeper, represented by P. Feinstein and T. Willis	CMD 15-H8.3 CMD 15-H8.3A
Mississaugas of the New Credit First Nation, represented by Chief B. LaForme and M. LaForme	CMD 15-H8.4
Mohawks of the Bay of Quinte represented by K. Shipley, G. Mallette and N. Storms	CMD 15-H8.6 CMD 15-H8.6A
Northwatch, represented by B. Lloyd	CMD 15-H8.7 CMD 15-H8.7A
Frank Greening	CMD 15-H8.8 CMD 15-H8.8A CMD 15-H8.8B
Women in Nuclear Canada, represented by H. Kleb, L. Marshall and J. Shikaze	CMD 15-H8.9
Greenpeace, represented by S. Stensil	CMD 15-H8.10 CMD 15-H8.10A CMD 15-H8.10B
Power Workers' Union, represented by A. Clunis and D. Trumble	CMD 15-H8.11 CMD 15-H8.11A
Provincial Council of Women of Ontario, represented by G. Janes	CMD 15-H8.12
Regional Municipality of Durham, represented by G. Cubitt, W. Leonard and K. Gorman	CMD 15-H8.13
Canadian Nuclear Workers Council, represented by D. Shier, J. Usher and C. Leavitt	CMD 15-H8.14 CMD 15-H8.14A
Canadian Nuclear Association, represented by J. Barrett and P. Poruks	CMD 15-H8.15
Society of Energy Professionals, represented by S. Travers, J. Fierro, P. Choiniere and D. Romanowicz	CMD 15-H8.16 CMD 15-H8.16A

Intervenors	Document Number
Dan Rudka	CMD 15-H8.17
Organization of Canadian Nuclear Industries, represented by R. Oberth	CMD 15-H8.18
Municipality of Kincardine, represented by Mayor A. Eadie	CMD 15-H8.19 CMD 15-H8.19A
Canadian Nuclear Society, represented by J. Roberts and C. Hunt	CMD 15-H8.20
Alexander Belyakok	CMD 15-H8.21 CMD 15-H8.21A
Anna Tilman	CMD 15-H8.22 CMD 15-H8.22A
Port Hope Community Health Concerns Committee represented by F. More and D. Rudka	CMD 15-H8.23
Allan and Barbel Canning	CMD 15-H8.24
Louisette Lanteigne	CMD 15-H8.25
Stephanie Woodward	CMD 15-H8.26
Canadian Association of Physicians for the Environment, represented by C. Vakil	CMD 15-H8.27 CMD 15-H8.27A
Citizens for a Safe Environment and the Committee for Sage Sewage, represented by K. Buck and D. Done	CMD 15-H8.28
Durham Nuclear Awareness, represented by M. McNeill, P. Seccaspina and B. Pulst	CMD 15-H8.29 CMD 15-H8.29A
Green Party of Ontario, represented by M. Schreiner	CMD 15-H8.30
Suhail Barot	CMD 15-H8.31
Ontario Sustainable Energy Association, represented by C. Young	CMD 15-H8.32 CMD 15-H8.32A
S. Nijhawan	CMD 15-H8.33 CMD 15-H8.33A CMD 15-H8.33B

Intervenors	Document Number
Linda Gasser	CMD 15-H8.34 CMD 15-H8.34A
Ole Hendrickson	CMD 15-H8.35
Borden Rhodes	CMD 15-H8.36
Louis Bertrand	CMD 15-H8.37 CMD 15-H8.37A
Beyond Nuclear, represented by K. Kamps	CMD 15-H8.38
Friends of the Farewell, represented by L. Racansky	CMD 15-H8.39
Robert Azzopardi	CMD 15-H8.40
Kirsten Dahl	CMD 15-H8.41
Canadian Coalition for Nuclear Responsibility, represented by G. Edwards	CMD 15-H8.42
New Clear Free Solutions, represented by C. Rouse	CMD 15-H8.43
Michel Duguay	CMD 15-H8.44
Severin Hoch	CMD 15-H8.45
Gail Cockburn	CMD 15-H8.46
	CMD 15-H8.47
Stephanie Beausoleil	CMD 15-H8.48
Monica Whalley	CMD 15-H8.49 CMD 15-H8.49A
Jeff Brackett	CMD 15-H8.50
Kathleen Chung	CMD 15-H8.51
Canadian Association of Nuclear Host Communities and the Municipality of Clarington, represented by A. Foster, F. Wu and G. Weir	CMD 15-H8.52

Intervenors	Document Number
SNC-Lavalin represented by R. Whalen	CMD 15-H8.53
Ontario Clean Air Alliance	CMD 15-H8.54
Society of Professional Engineers and Associates, represented by M. Ivanco and P. White	CMD 15-H8.55 CMD 15-H8.55A
Brigitte Vitali	CMD 15-H8.56
Renee Cotton	CMD 15-H8.57
Peter Tabuns, MPP for Toronto-Danforth	CMD 15-H8.58
GE Hitachi Nuclear Energy Canada	CMD 15-H8.59
Lorraine Roulston	CMD 15-H8.60
Ioana Antohe	CMD 15-H8.61
Granville Anderson, MPP for Durham	CMD 15-H8.62
Thomas Lawson	CMD 15-H8.63
Environmental Earth Angels	CMD 15-H8.64
Don Ross	CMD 15-H8.65
Orono Crown Lands Trust Board	CMD 15-H8.66
Port Hope & District Chamber of Commerce	CMD 15-H8.67
Voices for Earth Justice	CMD 15-H8.68
BettyAnne and Al Bod	CMD 15-H8.69
Sarah Hutchinson	CMD 15-H8.70
H. Douglas Lightfoot	CMD 15-H8.71
Larry Wiwchar	CMD 15-H8.72
Lois Banks	CMD 15-H8.73
Margaret Forsythe	CMD 15-H8.74

Intervenors	Document Number
Lorraine Mazzocato	CMD 15-H8.75
Clarington Museums and Archives	CMD 15-H8.76
Big Brothers Big Sisters of Clarington	CMD 15-H8.77
Cameco Corporation	CMD 15-H8.78
Brian Blomme	CMD 15-H8.79
Bruce Balsdon	CMD 15-H8.80
Mary Everett	CMD 15-H8.81
University of Ontario Institute of Technology represented by Edward Waller	CMD 15-H8.82
University of Ontario Institute of Technology represented by G. Bereznai	CMD 15-H8.83
Geneva Speakman	CMD 15-H8.84
Darlington Community Advisory Council represented by J. Boate	CMD 15-H8.85 CMD 15-H8.85A
Andrea Peloso	CMD 15-H8.86
A.J. Kehoe	CMD 15-H8.87 CMD 15-H8.87.A
National Farmers Union, Waterloo-Wellington Local, represented by L. Laepple	CMD 15-H8.88
James Ranscombe	CMD 15-H8.89
Elaine M. Walters	CMD 15-H8.90
T. Seitz	CMD 15-H8.91 CMD 15-H8.91A
Darlene Buckingham	CMD 15-H8.92
Clarington Board of Trade and Office of Economic Development, represented by S. Hall and D. Rickard	CMD 15-H8.93
Parkcrest Tenants' Association	CMD 15-H8.94

Intervenors	Document Number
Aecon Group Inc.	CMD 15-H8.95
Durham College	CMD 15-H8.96
Michelle Simeunovich	CMD 15-H8.97
Brad Blaney	CMD 15-H8.98
Pat Rogerson	CMD 15-H8.99
Deborah A. Beatty	CMD 15-H8.100
Greg Allen	CMD 15-H8.101
Wendy Hunter	CMD 15-H8.102
Joe Dickson, MPP for Ajax-Pickering	CMD 15-H8.103
George Milne	CMD 15-H8.104
Barbara J. Moore	CMD 15-H8.105
Janey Edwards	CMD 15-H8.106
John LaForge from Nukewatch	CMD 15-H8.107
Susan Hoch	CMD 15-H8.108
Bruce Campbell	CMD 15-H8.109
Graham Lodge	CMD 15-H8.110
Melanie Duhamel	CMD 15-H8.111
Carolina Rodriguez	CMD 15-H8.112
Sandra Halls	CMD 15-H8.113
Stacey Snow	CMD 15-H8.114
Natasha MacKenzie	CMD 15-H8.115
Marilyn McKim	CMD 15-H8.116
Women's Healthy Environments Network (WHEN)	CMD 15-H8.117

Intervenors	Document Number
Jacqueline Wakefield	CMD 15-H8.118
Lorraine D'Antonio	CMD 15-H8.119
Julia Levin	CMD 15-H8.120
Michelle Boigon	CMD 15-H8.121
CANDU Owners Group	CMD 15-H8.122
Travis Turner	CMD 15-H8.123
Uniform Durham Regional Environment Council	CMD 15-H8.124
Matthew Rushton	CMD 15-H8.125
Whitby Chamber of Commerce	CMD 15-H8.126
Ajax-Pickering Board of Trade	CMD 15-H8.127
Susan Larsh	CMD 15-H8.128
Judith Cockman	CMD 15-H8.129
Aidan McTeague	CMD 15-H8.130
Bruce Peninsula Environment Group	CMD 15-H8.131
John Herda	CMD 15-H8.132
Belinda Cole	CMD 15-H8.133
William Shore	CMD 15-H8.134
Dwayne E. King	CMD 15-H8.135
Jutta Splettstoesser	CMD 15-H8.136
Eleanor Ward	CMD 15-H8.137
Douglas Saunders, Clear Path Solutions	CMD 15-H8.138
Dennis Wharton	CMD 15-H8.139
Swith Bell	CMD 15-H8.140

Intervenors	Document Number
Alec Adams	CMD 15-H8.141
Monica Vida	CMD 15-H8.142
Kelly Clune	CMD 15-H8.143
Greater Oshawa Chamber of Commerce	CMD 15-H8.144
Janine Carter	CMD 15-H8.145
Pickering Nuclear Community Advisory Council, represented by J. Vincett, T. Kellar, D. Fabbro and C. Morrison	CMD 15-H8.146
Coalition for Nuclear Free Great Lakes	CMD 15-H8.147
Evelyn Butler	CMD 15-H8.148
Black & McDonald, represented by M. Healy	CMD 15-H8.149 CMD 15-H9.149A
North American Young Generation in Nuclear – Durham Chapter, represented by R. Mutiger, M. Mairinger, R. Naqvi, A. Baytekin and M. Chauhan	CMD 15-H8.150 CMD 15-H8.150A
Brenda Stevenson	CMD 15-H8.151
BWXT Canada Ltd., represented by J. MacQuarrie	CMD 15-H8.152 CMD 15-H8.152A
Trixie Deveau	CMD 15-H8.153
Several Individuals (letter writing campaigns)	CMD 15-H8.154
David Archer	CMD 15-H8.155
Sharen Skelly	CMD 15-H8.156
County of Bruce, represented by M. Twolan	CMD 15-H8.157
Nancy Doucet	CMD 15-H8.158
Christine Koenig	CMD 15-H8.159
Jo Hayward-Haines	CMD 15-H8.160

Intervenors	Document Number
Curtis Bennett	CMD 15-H8.161
Australian Radiation Protection and Nuclear Safety Agency	CMD 15-H8.162