

**AOPA Australia
Shellharbour Airport Committee Report**

**Risks to the Safety of Aviation of
The Proposed Tallawarra B Open Cycle Gas Turbine**

**and other
Peaking Power Plants**

Appendices C - E

January 20, 2020

Appendix C - Relevant Accident Incident references

- ATSB - AO-2007-060 – Cessna 172M Collision with Terrain
- ATSB - AO-2014-192 - Cessna 172S Collision with Terrain
- ATSB – AO-2011-160 – Cessna 210M – In Flight Breakup
- ATSB – AI-2013-102 – Building approval process for structures in the vicinity of airports
- ATSB – AR-2008-044(2) – Safety in the vicinity of non-towered airports
- Hawkes, Neil & Flay, Richard. (2016). Dust Devil Heights and Windspeeds: A modified model.
- FAA Safety Study Report – DOT-FAA-AFS-420-06-1 – Safety Risk Analysis of Aircraft Overflight of Industrial Exhaust Plumes
- AAI Synoptic Report No 2004-001, AAIU File No: 2002/0047 – Irish helicopter flame out over exhaust plume
- KAIB/AAR F0201 – CFIT – Air China Flight 129 (human factors ‘blindness’ example of pilot and crew single minded focus)
- NASA Teacher Talk Aerodynamics.ppt
- NTSB Identification: LAX89LA270 – Helicopter flame out over exhaust stack
- NTSB Identification: FTW95FA186 - Helicopter flame out over exhaust stack
- Transport Safety Board of Canada – Aviation Investigation report **A01P0203 – Vo(rolling) quote**

Appendix D - Relevant Scholarly Articles

- Embry-Riddle - The Effect of Crosswind and Turbulence in Mental Workload and Pilot Tracking Performance
- AOPA Air Safety Institute – Stall and Spin Accidents – Keep the Wings Flying
- <https://www.aopa.org/news-and-media/all-news/2018/december/flight-training-magazine/critical-thinking>
- ATSB Aviation Research Paper B2004/0010 – GA Fatal Accidents: How do they happen?
- Journal of Applied Meteorology, Volume 29, Characteristics of Dust Devils in Australia – GD Hess and KT Spillane
- FSF European Advisory Committee – Jan 24,2011, Discussion Paper: Circling Approach Part II – “Issues Identified”
- David Gouldey and Joseph Hopper - Determining the Risk of Experiencing Severe Turbulence when Flying through an Exhaust Plume: 14-0607
- Using WRF-ARW Data to forecast turbulence at small scales – Passner and Knapp
- Expanded Model for Determining the Effects of Vertical Plumes on Aviation Safety - *David Gouldey, Joe Hopper and Dr. Jonathan Schwalbe* –MITRE 13-0183
- NASA – Principle of Flight in Action
- Turbulence Kinetic Energy – Matic Savli, May 27, 2012
- AVweb Flight Safety Technique – turbulence V-Speeds
- Fly Safe – Wind shear and Turbulence

Appendix E - Other References

- **Plume Rise Models:**
 - Science Applications International Corporation (SAIC) – Analysis of the Impact of Vertical Plumes and Exhaust Effluent on Aviation Safety – Sept 30, 2010
 - NSW EPA – Approved Methods for the Modelling and Assessment of Air Pollutants in NSW.2016
 - MITRE Expanded Model for Determining the Effects of Vertical Plumes on Aviation Safety – Gouldey, Hopper and Schwalbe – 2012
 - CSIRO - TAPM V4 User Manual – Peter Hurley – October 2008

- **Other Plume Rise Assessments:**
 - Pacific Environment Limited – B.FLT.0369 – August 2015 – Development of an Odour Emissions Model for Australian Feedlots – Part D: Modelling Guidance Document for the Livestock Industry
 - Pacific Environment Limited – B.FLT.0369 – August 2015 – Development of an Odour Emissions Model for Australian Feedlots – Part E – Validation of TAPM for Feedlot Odour Studies
 - Pacific Air and Environment –Final Report – Air Quality Assessment – Alcan Gove Alumina Refinery – Appendix B - Job No 1451 – Jan 30, 2004

- **Aircraft Plume Response Modelling:**
 - NASA CR 111966 – Single-Degree-of-Freedom Roll Response due to Two-Dimensional Vertical Gusts – Houbolt and Sen - July 1971

- **Gas Turbine Documents:**
 - Powering Forward: GE's Record Setting HA Gas Turbine Ignites a New Era of Power Generation – GEA 33853 – Sept 2018
 - Combined Cycle – Development, Evolution and Future – GER 4206 – David L Chase – 04/01
 - Combined Cycle Power Plants as Ideal Solution to Balance Grid Fluctuations – Alston Power – Sept 2011
 - GE Power- Towards 65% Efficiency: GE Solution for Advanced Combined Cycle Power Plant with HA Gas Turbine – July 2018
 - GE: Startup Time Reduction for Combined Cycle Power Plants – Oct 12, 2016
 - gepower.com/hybrid – Hybrid Solutions
 - GE Hybrid Solutions – Improving Combined Cycle Flexibility and utilisation with Battery Storage

- **Aircraft Design Criteria:**
 - ASTM F2245: Standard Specifications for Design and Performance of Light Sport Airplane
 - CASA Part 21 Manual of Standards
 - European Aviation Safety Agency: certification Specifications for Normal, Utility, Aerobatic, and Commuter Category Aeroplanes CS-23
 - FAA, DOT: Appendix A to Part 23 – Simplified Design Load Criteria
 - FAR 23.333 – Flight Envelope: 23.335 – Design Airspeeds: 23.341 – gust Load Factors
 - Czech Aircraft Works: Zenair CH601XL-B Zodiac Load Analysis