



Australian Government

Department of Infrastructure and Regional Development

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DECISION UNDER THE AIRPORTS (PROTECTION OF AIRSPACE) REGULATIONS 1996:

Proposed Activity: Exhaust Plumes

Location: WestConnex Exhaust Plume – Arncliffe
WestConnex Exhaust Plume – Kingsgrove
WestConnex Exhaust Plume – St Peters

Proponent: Sydney Motorway Corporation

I refer to the applications from WestConnex (the proponent), received by the Department on 4 November 2015, including the proponent's modelling of plume velocities. These applications sought approval under the *Airports Act 1996* (the Act) and the Airports (Protection of Airspace) Regulations 1996 (the Regulations) for the intrusion of plume rises at Arncliffe, Kingsgrove and St Peters, NSW, into airspace which, under the Regulations, is prescribed airspace for Sydney Airport.

Legal Framework

Under Regulation 6(1), 'Prescribed airspace' includes the airspace above any part of either an Obstacle Limitation Surface (OLS) or Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS) surface for the airport.

Section 182(1) of the Act provides that the following activity is a controlled activity in relation to prescribed airspace:

- (f) an activity that results in air turbulence, where:
 - (i) the level of the turbulence exceeds the level ascertained in accordance with the regulations; and
 - (ii) the turbulence is capable of affecting the normal flight of aircraft operating in the prescribed airspace.

Regulation 6A provides that for subparagraph 182(1)(f)(i) of the Act, the level of air turbulence for turbulence caused by an emission from a stack or vent is upward vertical velocity of 4.3 m/s.

Regulation 14 provides that a proposal to carry out a controlled activity must be approved unless carrying out the controlled activity would interfere with the safety, efficiency or regularity of existing or future air transport operations into or out of the airport concerned. Paragraph 14(1)(b) provides that an approval may be granted subject to conditions.

Assessment

Details of the penetrations of prescribed airspace as provided by Westconnex and based on modelling undertaken by Pacific Environment Limited are provided in **Table 1**.

Table 1: location and details of the proposed activity and proponent modelled velocities in prescribed airspace for Sydney Airport. (Note: Kingsgrove not modelled for capacity case.)

Location	MGA 94 coordinates	OLS			PANS-OPS		
		Height (m)	Velocity		Height (m)	Velocity	
			Expected	Capacity		Expected	Capacity
Kingsgrove	E323909; N6242790	156	3.3 m/s	N/A	243.84	2.5m/s	N/A
St Peters	E331338; N6245670	51	3.4 m/s	4.6 m/s	71.3	2.8 m/s	3.8 m/s
Arncliffe	E329453; N6243300	51	5.8 m/s	7.2 m/s	90	3.3 m/s	4.2 m/s

As the modelled velocity of the plume from the **Kingsgrove** stack at the Outer Horizontal Surface (at 156m Australian Height Datum (AHD)) of the OLS is below 4.3 m/s it is **not a controlled activity**, and does not require approval.

As the modelled velocity of the Arncliffe and St. Peters plumes are above 4.3 m/s at the OLS (at 51m AHD), these proposed activities would constitute a controlled activity under Section 182 of the Act and under section 183 of the Act require approval.

The proponent's modelling demonstrated no infringement of PANS-OPS at above 4.3 m/s at either site. However, following concerns raised by Sydney Airport Corporation Limited (SACL) in December 2015, the Civil Aviation Safety Authority (CASA) commissioned an independent study of the vent plume impacts, which was completed in March 2016.

The independent modelling confirmed that there would be no infringement of PANS-OPS at average vertical velocities above 4.3 m/s under the expected operational conditions at both the Arncliffe and St Peters sites. It also found no infringement at St Peters under the capacity case.

However, based on the independent modelling, CASA determined that above the Arncliffe site, the PANS-OPS will be infringed at velocities above 4.3 m/s under the capacity case. CASA states that this is based on conservative modelling and would be expected to occur infrequently. CASA also confirmed that the plume infringing the PANS-OPS will not create severe turbulence.

Paragraph 14(5) provides that if a controlled activity would, if carried out, result in a building, structure or thing intruding into PANS OPS airspace, the Secretary may approve a proposal for the activity only if:

- (a) the activity is a short term controlled activity; and

(b) the airport operator company (if any) for the airport concerned supports the approval.

Based on advice from the Australian Government Solicitor, the Department believes that the occurrence of turbulence in particular airspace does not constitute a 'thing' 'intruding into' the airspace. On this basis, the Department has determined that regulation 14(5) does not apply to the operation of the proposed Westconnex tunnel exhaust vents.

Decision

Under the Regulations, the Secretary is empowered to make decisions in relation to the approval of controlled activities, and the imposition of conditions on approvals. I have been delegated the Secretary's powers under the Regulations.

In making my decision, I have taken into consideration the opinions of the proponent, CASA, Airservices Australia and SACL.

The exhaust plume at the Kingsgrove site is not a controlled activity and does not require approval.

In accordance with Regulation 14, I **approve** the controlled activity of the intrusion of the plume rises at Arncliffe and St Peters, as described in the proponent's modelling, into prescribed airspace for Sydney Airport.

In accordance with Regulation 14(1)(b), I **impose the following conditions on my approval**:

1. The proponent **must** provide 12 months' notice to CASA regarding the expected operational date of the Westconnex Tunnel ventilation systems to enable CASA to notify particulars of the ventilation outlets through publication in AIP and/or NOTAMS before operation commences.
2. The proponent **must** monitor the Arncliffe and St Peters ventilation systems for the first 12 months of operation and provide relevant data relating to the actual operations over that period to CASA and the Department, including:
 - a. noting periods when the ventilation systems are operated at maximum capacity, and
 - b. if the ventilation systems operate outside the parameters modelled by the proponent.

Breaches of approval conditions are subject to significant penalties under sections 185 and 187 of the Act.

Yours sincerely



Pip Spence
A/g Deputy Secretary

1 April 2016