



June 2018 Air Quality Summary Report

Barangaroo South – Remediation Works

Licence Number: 13336

Licensee: Barangaroo Delivery Authority

Licensee Address: Level 27, 201 Kent Street, Sydney

Sampling period: 1-30 June 2018

Date provided to Licensee: 20 July 2018

Date published: 20 July 2018

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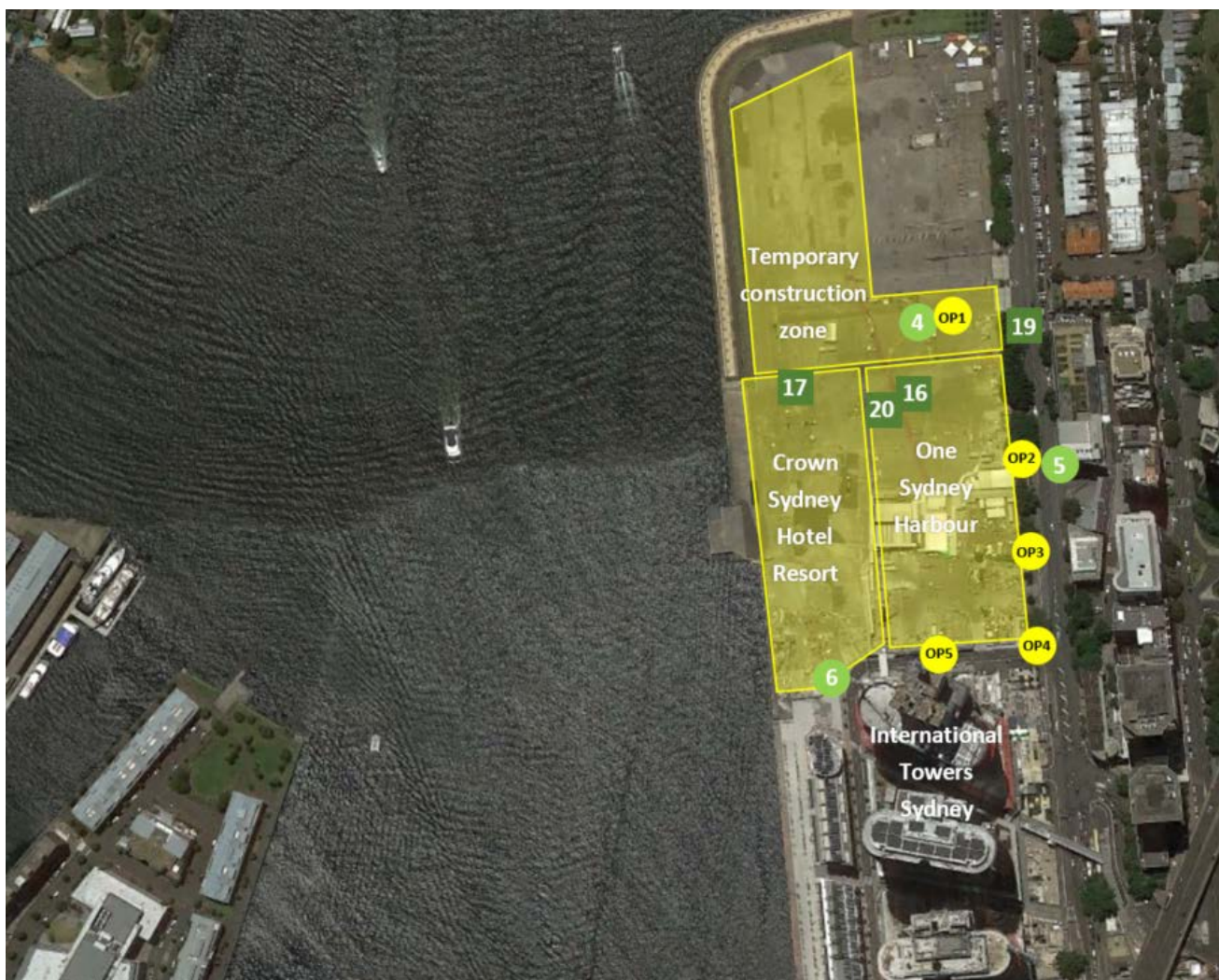
This report has been compiled to summarise results of air quality monitoring at Barangaroo South in June 2018 in accordance with [EPL number 13336](#). This data is for samples taken from 1 to 30 June 2018. The data was provided to the Barangaroo Delivery Authority (the Licencee) on 20 July 2018.

Lend Lease conducts continuous air quality monitoring at Barangaroo South to measure air quality and assist the construction team implement appropriate environmental controls on site.

Air quality monitoring is carried out in accordance with all relevant authority and statutory requirements. Monitoring parameters include particulate matter less than 10 microns (PM10), total solid particles (TSP), metals, polycyclic aromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs).




Air quality monitoring locations

Air quality monitoring locations are located as shown below:



Approximate location of air monitoring equipment

Legend

-  Ambient Air Quality Monitoring – EPL Point
-  Ambient Odour Monitoring Point
-  Enclosure Discharge Point – EPL Point



Hickson Road Remediation VOCs

The Hickson Road remediation works have commenced. The Hickson Road remediation includes the use of an Odour Control Enclosure (OCE) and Emissions Control System (ECS) to manage the air quality associated with the works. The air from within the OCE is captured and treated, using granular activated carbon (GAC) before the treated air is discharged in accordance with the premises EPL No. 13336 from EPL Point 19. VOC (as n-propane equivalent) is measured on a continuous basis using a Flame Ionising Detector (FID). The VOC data for this month has been summarised below.

Monitoring results – Block 4 & 5 Remediation

The Block 4 & 5 remediation works have commenced. Like the Hickson Road remediation, the Block 4 & 5 includes the use of an OCE and ECS. The air from within the OCE is captured and treated using GAC before the being discharged in accordance with the premises EPL No. 13336 from EPL Point 20. VOC (as n-propane equivalent) is measured on a continuous basis using a Photoionisation Detection Unit (PID). The VOC data for this month has been summarised below.

Monitoring results – Main Water Treatment Plant

During June 2018, the Water Storage Balance Tanks (WSBTs) fed untreated surface and groundwater water from the OSH remediation works to the Main Water Treatment Plant (MWTP) for treatment. The water was treated and discharged in accordance with the premises EPL No. 13336. The air from the WSBTs and the MWTP is cleaned through filter media and discharged via vents. These vents are monitored in accordance with EPL requirements. During June, there were four air discharges points (EPL Point 16, 17, 19, & 20) that were monitored in accordance with the EPL (continuously during operation). There were no exceedances of the VOC data associated with the WSBTs (EPL Point 17), the MWTP (EPL Point 16), the Block 4 & 5 remediation (EPL Point 20) or the Hickson Road remediation (EPL Point 19) for this month.

Volatile Organic Compounds (VOCs)

| Monitoring Parameter | EPL Point 16 1 hour average | EPL Point 17 1 hour average | EPL Point 19 1 hour average | EPL Point 20 1 hour average |
|------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Average (mg/m ³) | 0.68 | 0 | 0.06 | 0.68 |
| Minimum (mg/m ³) | 0.24 | 0 | 0 | 0 |
| Maximum (mg/m ³) | 8.28 | 0 | 2.89 | 3.99 |
| Limit (mg/m ³) | 10 | 10 | 10 | 5 |



Monitoring results – Ambient air quality

Monitoring at ambient locations around the construction site was undertaken as per the EPL 13336.

These locations correspond to the following licenced monitoring locations, as shown in the figure above:

- Northern: EPL Point 4
- Eastern: EPL Point 5
- Southern: EPL Point 6

PM10

| Monitoring Parameter | EPL Point 4 ($\mu\text{g}/\text{m}^3$) | EPL Point 5 ($\mu\text{g}/\text{m}^3$) | EPL Point 6 ($\mu\text{g}/\text{m}^3$) |
|----------------------|--|--|--|
| Average | 18.6 | 5.2 | 6.0 |
| Minimum (24hr) | 7.4 | 0.7 | 0.5 |
| Maximum (24hr) | 29.3 | 9.0 | 10.7 |

Volatile Organic Compounds (VOCs) – Ambient

| Monitoring Parameter | EPL Point 4 (ppm) | EPL Point 5 (ppm) | EPL Point 6 (ppm) |
|----------------------|-------------------|-------------------|-------------------|
| Average | 0 | 0 | 0 |
| Minimum (24hr) | 0 | 0 | 0 |
| Maximum (24hr) | 0 | 0 | 0 |

Total Solid Particles (TSP)

| Monitoring Parameter | EPL Point 4 - TSP ($\mu\text{g}/\text{m}^3$) | EPL Point 6 - TSP ($\mu\text{g}/\text{m}^3$) |
|-------------------------|--|--|
| 02/06/2018 | 60.00 | 47.89 |
| 08/06/2018 | 58.97 | 34.88 |
| 14/06/2018 | 38.18 | 27.82 |
| 20/06/2018 | 37.85 | 36.24 |
| 26/06/2018 | 59.53 | 44.57 |
| Rolling annual average | 77.92 | 64.78 |
| Annual average criteria | 90 | 90 |

PAHs

| Monitoring Parameter | EPL Point 4 (ng/m^3) | | EPL Point 6 (ng/m^3) | |
|--|--|-----------------|--|-----------------|
| | Total PAH | Benzo(a) pyrene | Total PAH | Benzo(a) pyrene |
| 02/06/2018 | <3 | <2 | <3 | <2 |
| 08/06/2018 | <3 | <2 | <3 | <2 |
| 14/06/2018 | <3 | <2 | <3 | <2 |
| 20/06/2018 | <3 | <2 | <3 | <2 |
| 26/06/2018 | <3 | <2 | <3 | <2 |
| 1 Hour Average Criteria (indicative purposes) (PAHs as BaP) (ng/m^3) | 400 | | | |



Metals

| Date | Location | Concentration (ng/m ³) | | | | | | | | | | | | |
|-------------------------------|-------------|------------------------------------|------|-----|------|------|------|------|-----|------|-----|------|-----|------|
| | | As | Cd | Cr | Pb | Ni | Be | Co | Mn | V | Sb | Hg | Se | Sn |
| 02/06/2018 | EPL Point 4 | <5.2 | <1.3 | 3.8 | 6.7 | <2.6 | <2.6 | <1.3 | 23 | <2.6 | <13 | <0.5 | <13 | <5.2 |
| | EPL Point 6 | <5.2 | <1.3 | 4.8 | 6.2 | <2.6 | <2.6 | <1.3 | 19 | <2.6 | <13 | <0.5 | <13 | 5.9 |
| 08/06/2018 | EPL Point 4 | <5.2 | <1.3 | 3.5 | 4.1 | <2.6 | <2.6 | <1.3 | 34 | <2.6 | <13 | <0.5 | <13 | <5.2 |
| | EPL Point 6 | <5.2 | <1.3 | 2.6 | 3.4 | <2.6 | <2.6 | <1.3 | 16 | <2.6 | <13 | <0.5 | <13 | <5.2 |
| 14/06/2018 | EPL Point 4 | <5.2 | <1.3 | 3.1 | 3.8 | <2.6 | <2.6 | <1.3 | 14 | <2.6 | <13 | <0.5 | <13 | 6.4 |
| | EPL Point 6 | <5.2 | <1.3 | 2.1 | <2.6 | <2.6 | <2.6 | <1.3 | 14 | <2.6 | <13 | <0.5 | <13 | <5.2 |
| 20/06/2018 | EPL Point 4 | <5.2 | <1.3 | 2.8 | 5.9 | <2.6 | <2.6 | <1.3 | 9.5 | <2.6 | <13 | <0.5 | <13 | 5.4 |
| | EPL Point 6 | <5.2 | <1.3 | 2.4 | 5.9 | <2.6 | <2.6 | <1.3 | 16 | <2.6 | <13 | <0.5 | <13 | <5.2 |
| 26/06/2018 | EPL Point 4 | 6.3 | <1.3 | 5.7 | 10 | 4.8 | <2.6 | <1.3 | 37 | 4.9 | <13 | <0.5 | <13 | 21 |
| | EPL Point 6 | 6.1 | <1.3 | 4.1 | 9.5 | 2.8 | <2.6 | <1.3 | 27 | 3.3 | <13 | <0.5 | <13 | <5.2 |
| EPL Point 4 Annual Average | | - | - | - | 5.45 | - | - | - | - | - | - | - | - | - |
| EPL Point 6 Annual Average | | - | - | - | 4.60 | - | - | - | - | - | - | - | - | - |
| Annual Average Criteria | | | | | 500 | | | | | | | | | |

Frequencies – Ambient Monitoring

| Parameter | Frequency | EPL Point 4 | EPL Point 5 | EPL Point 6 |
|-------------------------------------|--|-----------------------|-------------|-------------|
| TSP, PAHs, metallic compounds | Monitoring frequency required by licence | 24 Hours every 6 days | | |
| | No. of samples required by licence | 5 | N/A | 5 |
| | No. of samples collected & analysed | 5 | N/A | 5 |
| VOCs | Monitoring frequency required by licence | Daily (during work) | | |
| | No. of samples required by licence | 26 | 26 | 26 |
| | No. of samples collected & analysed | 26 | 26 | 26 |
| PM10 | Monitoring frequency required by licence | Continuous | | |
| | No. of samples required by licence | | | |
| | No. of samples collected & analysed | | | |