



## May 2017 Air Quality Summary Report

### Barangaroo South – Remediation Works

**Licence Number:** 13336

**Licensee:** Barangaroo Delivery Authority

**Licensee Address:** Level 21, 201 Kent Street, Sydney

**Sampling period:** 1-31 May 2017

**Date provided to Licensee:** 20 June 2017

**Date published:** 20 June 2017

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## Barangaroo South – Remediation Works

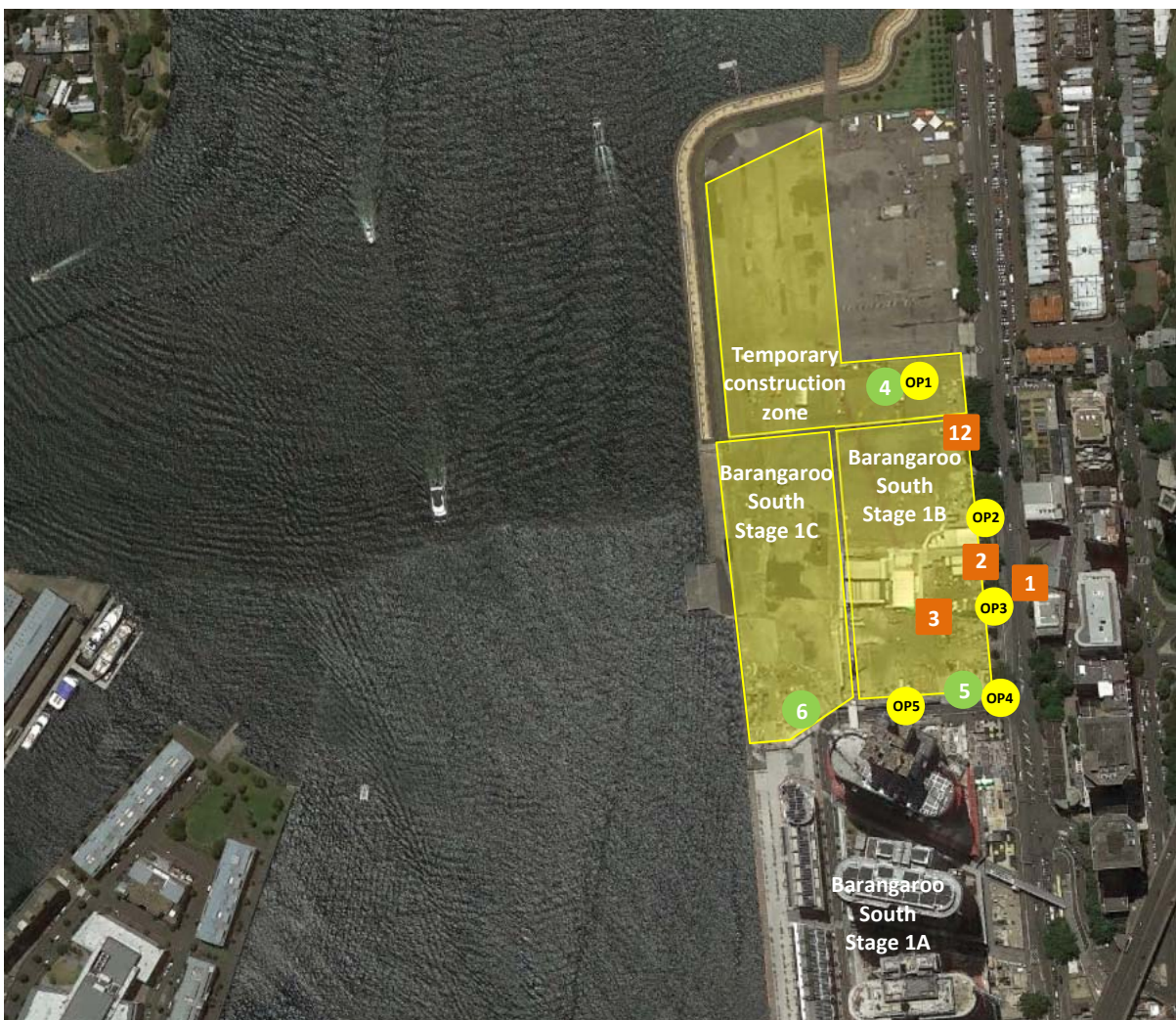
This report has been compiled to summarise results of air quality monitoring at Barangaroo South in May 2017 in accordance with [EPL number 13336](#). This data is for samples taken from 1 to 31 May 2017. The data was provided to the Barangaroo Delivery Authority (the Licencee) on 20 June 2017.

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



## Monitoring results – ISCO Remediation Trial

During May 2017, there were no works requiring air quality monitoring in accordance with the licence.

## Monitoring results – Perimeter Retention Wall works

During May 2017 construction of the perimeter retention wall was undertaken in accordance with relevant management plans with specific controls implemented during this reporting period which included:

- Negative pressure excavation enclosures
- Granulated Activated Carbon filter system
- Emissions Control System

### Volatle Organic Compounds (VOCs) – Perimeter Retention Wall

| Monitoring Parameter         | EPL Point 2<br>(mg/m <sup>3</sup> ) | EPL Point 3<br>1 hour average (mg/m <sup>3</sup> ) | EPL Point 12<br>1 hour average (mg/m <sup>3</sup> ) |
|------------------------------|-------------------------------------|--|---|
| Average (mg/m <sup>3</sup> ) | 0.13                                | Not Required                                       | Not Required  |
| Minimum (mg/m <sup>3</sup> ) | 0.00                                | Not Required                                       | Not Required  |
| Maximum (mg/m <sup>3</sup> ) | 1.00                                | Not Required                                       | Not Required  |
| Limit                        | 10 mg/m <sup>3</sup>                | 5 mg/m <sup>3</sup>                                | 10 mg/m <sup>3</sup>                                |

### Frequency

| Parameter                    | Frequency                                | EPL Point 2         | EPL Point 3 & 12 |
|------------------------------|--|---------------------|------------------|
| VOCs as n-propane equivalent | Monitoring frequency required by licence | Daily (during work) | Not Required     |
|                              | No. of samples required by licence       | 10                  |                  |
|                              | No. of samples collected & analysed      | 10                  |                  |

## 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 (µg/m <sup>3</sup> ) | EPL Point 5 (µg/m <sup>3</sup> ) | EPL Point 6 (µg/m <sup>3</sup> ) |
|----------------------|----------------------------------|----------------------------------|----------------------------------|
| Average              | 21.6                             | 3.3                              | 4.4                              |
| Minimum (24hr)       | 12.0                             | 1.1                              | 2.5                              |
| Maximum (24hr)       | 35.4                             | 9.3                              | 10.3                             |

### Volatle Organic Compounds (VOCs) – Ambient

| Monitoring Parameter | EPL Point 4 (ppm) | EPL Point 5 (ppm) | EPL Point 6 (ppm) |
|----------------------|-------------------|-------------------|-------------------|
| Average              | 0.06              | 0.05              | 0.10              |
| Minimum (24hr)       | 0                 | 0                 | 0                 |
| Maximum (24hr)       | 0.2               | 0.2               | 1                 |



### Total Solid Particles (TSP)

| Monitoring Parameter    | EPL Point 4 - TSP ( $\mu\text{g}/\text{m}^3$ ) | EPL Point 6 - TSP ( $\mu\text{g}/\text{m}^3$ ) |
|-------------------------|--|--|
| 02/05/2017              | 60.01  | 33.18  |
| 08/05/2017              | 60.22  | 36.21  |
| 14/05/2017              | 27.83  | 25.35  |
| 20/05/2017              | 27.42  | 32.13  |
| 26/05/2017              | 61.41  | 32.99  |
| Rolling annual average  | 55.17  | 45.77  |
| Annual average criteria | 90   | 90   |

### PAHs

| Monitoring Parameter   | EPL Point 4 ( $\text{ng}/\text{m}^3$ ) |                 | EPL Point 6 ( $\text{ng}/\text{m}^3$ ) |                 |
|--|--|-----------------|--|-----------------|
|  | Total PAH                              | Benzo(a) pyrene | Total PAH                              | Benzo(a) pyrene |
| 02/05/2017   | <3                                     | <2              | <3                                     | <2              |
| 08/05/2017   | <3                                     | <2              | <3                                     | <2              |
| 14/05/2017   | <3                                     | <2              | <3                                     | <2              |
| 20/05/2017   | <3                                     | <2              | <3                                     | <2              |
| 26/05/2017   | <3                                     | <2              | <3                                     | <2              |
| 1 Hour Average Criteria (indicative purposes) (PAHs as BaP) ( $\text{ng}/\text{m}^3$ ) | 400                                    |                 |  |                 |

### Metals

| Date  | Location     | Concentration ( $\text{ng}/\text{m}^3$ ) |      |      |      |      |      |    |      |       |     |     |      |      |
|---|--------------|--|------|------|------|------|------|----|------|-------|-----|-----|------|------|
|   |              | Sb                                       | As   | Cd   | Pb   | Hg   | Be   | Cr | Co   | Mn    | Ni  | Se  | Sn   | V    |
| 02/05/2017                                    | EPL Point 4  | <13                                      | <5.2 | <1.3 | 6    | <0.5 | <2.6 | 7  | <1.3 | 48    | 6   | <13 | <5.2 | 4    |
|   | EPL Point 6  | <13                                      | <5.2 | <1.3 | 4    | <0.5 | <2.6 | 6  | <1.3 | 17    | 5   | <13 | <5.2 | <2.6 |
| 08/05/2017                                    | EPL Point 4  | <13                                      | <5.2 | <1.3 | 5    | <0.5 | <2.6 | 8  | <1.3 | 48    | 6   | <13 | <5.2 | 8    |
|   | EPL Point 6  | <13                                      | <5.2 | <1.3 | 5    | <0.5 | <2.6 | 9  | 2    | 16    | 6   | <13 | <5.2 | 7    |
| 14/05/2017                                    | EPL Point 4  | <13                                      | <5.2 | <1.3 | 4    | <0.5 | <2.6 | 6  | <1.3 | 12    | 5   | <13 | <5.2 | 3    |
|   | EPL Point 6  | <13                                      | <5.2 | <1.3 | 3    | <0.5 | <2.6 | 4  | 2    | 8     | 4   | <13 | <5.2 | <2.6 |
| 20/05/2017                                    | EPL Point 4  | <13                                      | <5.2 | <1.3 | <2.6 | <0.5 | <2.6 | 6  | 2    | 10    | 6   | <13 | <5.2 | 4    |
|   | EPL Point 6  | <13                                      | <5.2 | <1.3 | <2.6 | <0.5 | <2.6 | 6  | 3    | 21    | 7   | <13 | <5.2 | 6    |
| 26/05/2017                                    | EPL Point 4' | <13                                      | <5.2 | <1.3 | 6    | <0.5 | <2.6 | 8  | 3    | 53    | 5   | <13 | <5.2 | 4    |
|   | EPL Point 6' | <13                                      | <5.2 | <1.3 | 6    | <0.5 | <2.6 | 10 | 2    | 19    | 6   | <13 | <5.2 | <2.6 |
| EPL Point 4 Annual Average                    |              | -  | -    | -    | 23.4 | -    | -    | -  | -    | -     | -   | -   | -    | -    |
| EPL Point 6 Annual Average                    |              | -  | -    | -    | 21.7 | -    | -    | -  | -    | -     | -   | -   | -    | -    |
| 1 Hour Average Criteria (indicative purposes) |              | 9  | 90   | 18   | -    | 180  | 4    | 90 | -    | 18000 | 180 | -   | -    | -    |
| No. of 1 hr Exceedances                       |              | 0  | 0    | 0    | 0    | 0    | 0    | 0  | -    | 0     | 0   | -   | -    | -    |
| Annual Average Criteria                       |              |  |      |      | 500  |      |      |    |      |       |     |     |      |      |

Environment Protection Licence number: 13336

Licencee: Barangaroo Delivery Authority, Level 21, AON/Maritime Trade Towers, 201 Kent Street, Sydney, 2000

These results have been made available in accordance with Environment Protection Authority requirements for publishing pollution monitoring data



### Frequencies – Ambient Monitoring

| Parameter                           | Frequency                                | EPL Point 4           | EPL Point 5 | EPL Point 6 |
|-------------------------------------|--|-----------------------|-------------|-------------|
| TSP, PAHs,<br>metallic<br>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       | 24                    | 24          | 24          |
|                                     | No. of samples collected & analysed      | 24                    | 24          | 24          |
| PM10                                | Monitoring frequency required by licence | Continuous            |             |             |
|                                     | No. of samples required by licence       |                       |             |             |
|                                     | No. of samples collected & analysed      |                       |             |             |