



January 2017 Water 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 to 31 January 2017

Date provided to Licensee: 20 February 2017

Date published: 20 February 2017

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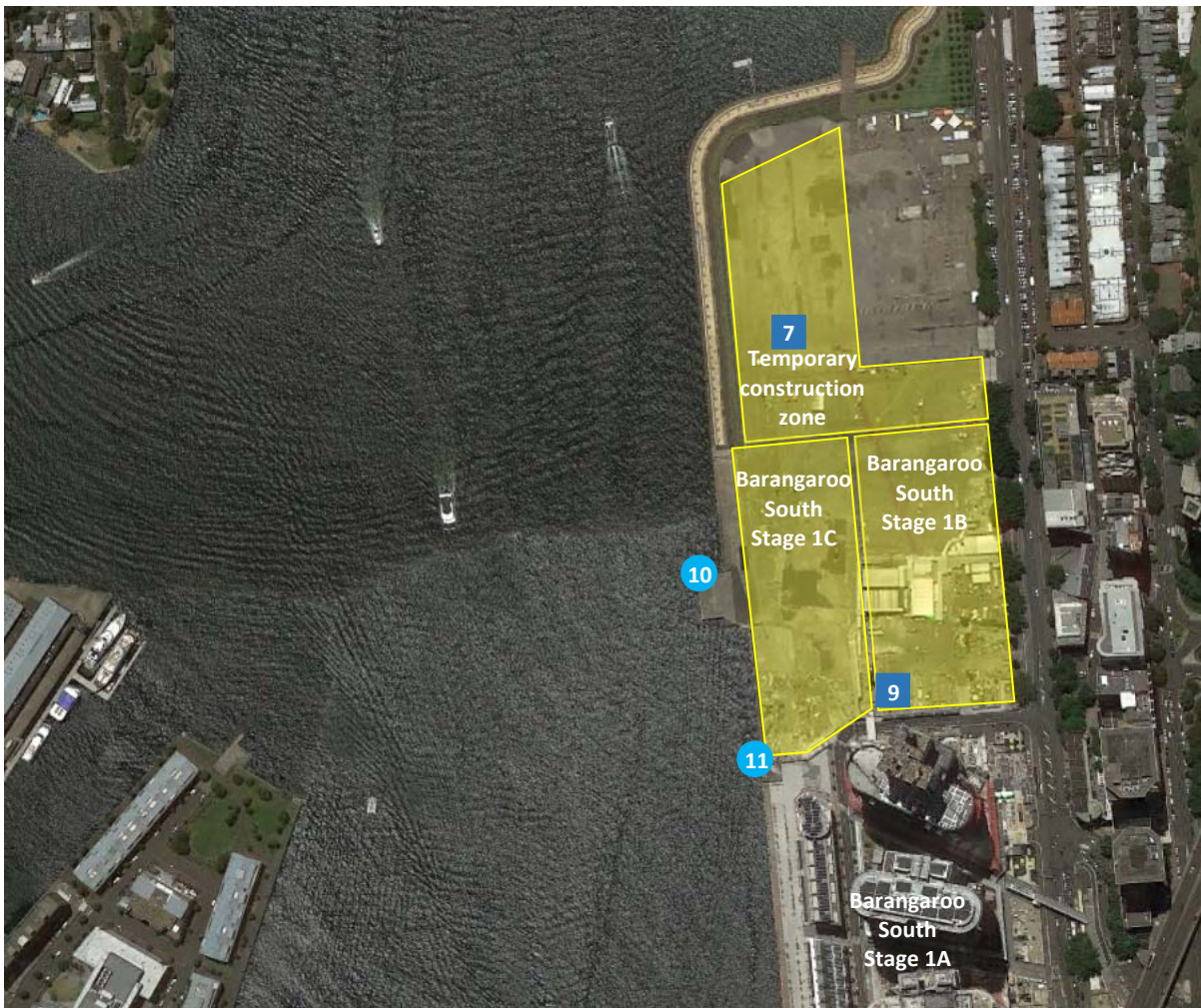
This report has been compiled to summarise results of water quality monitoring at Barangaroo South in January 2017 in accordance with EPL number 13336. This data is for samples taken from 1 to 31 January 2017. The data was provided to the Barangaroo Delivery Authority (the Licencee) on 20 February 2017.

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

Water quality monitoring is carried out in accordance with all relevant authority and statutory requirements. Ambient monitoring in Darling Harbour measures conductivity, pH, temperature and turbidity.

Water quality monitoring locations

Water quality monitoring locations are located as shown below:



Approximate location of water quality monitoring equipment

Legend

- Ambient Water Quality Monitoring Location
- WTP Water Discharge Point
- X EPL point number

EPL Point 10 is the Nearfield 1 (NF1) location, and EPL Point 11 is the Nearfield 2 (NF2) location. EPL Point 9 is the discharge point for the Perimeter Retention Wall (PRW) water treatment plant (WTP). EPL Point 7 is the discharge point for the Crown Development WTP.



Monitoring results

WTP Discharge

There were no discharges from the Water Treatment Plant to EPL Point 7 during the month. All captured stormwater was treated and reused on site.

EPL Point 9

| Pollutant | Units of measure | Monitoring frequency required by licence | Limit | Min. Value | Max. Value | Exceedence (yes/no) | No. of Samples: | |
|------------------------|------------------|--|-----------|------------|------------|---------------------|-----------------|-----------|
| | | | | | | | Required | Completed |
| Volume | kL | Daily | 260 | 34 | 34 | No | 1 | 1 |
| Ammonia(N) | µg/L | Varies* | 910 | 100 | 100 | No | 1 | 1 |
| Conductivity | uS/cm | Varies* | N/A | 1300 | 1300 | N/A | 1 | 1 |
| Cyanide (total) | µg/L | Varies* | 4 | ND | ND | No | 1 | 1 |
| Dissolved Oxygen | mg/L | Varies* | N/A | 7.2 | 7.2 | N/A | 1 | 1 |
| Oil & Grease | mg/L | Varies* | 10 | ND | ND | No | 1 | 1 |
| pH | pH | Varies* | 6.5 - 8.5 | 7.7 | 7.7 | No | 1 | 1 |
| Sulphate (S) | mg/L | Varies* | N/A | 240 | 240 | N/A | 1 | 1 |
| Suspended Solids | mg/L | Varies* | 50 | ND | ND | No | 1 | 1 |
| Turbidity (NTU) | NTU | Varies* | N/A | 0.7 | 0.7 | N/A | 1 | 1 |
| Benzene | µg/L | Varies* | 500 | ND | ND | No | 1 | 1 |
| Toluene | µg/L | Varies* | 180 | ND | ND | No | 1 | 1 |
| Ethylbenzene | µg/L | Varies* | 80 | ND | ND | No | 1 | 1 |
| Total m+p-Xylenes | µg/L | Varies* | 75 | ND | ND | No | 1 | 1 |
| o-Xylene | µg/L | Varies* | 350 | ND | ND | No | 1 | 1 |
| Arsenic (filtered) | µg/L | Varies* | 2.3 | ND | ND | No | 1 | 1 |
| Cadmium (filtered) | µg/L | Varies* | 0.7 | ND | ND | No | 1 | 1 |
| Copper (filtered) | µg/L | Varies* | 1.3 | ND | ND | No | 1 | 1 |
| Lead (filtered) | µg/L | Varies* | 4.4 | ND | ND | No | 1 | 1 |
| Mercury (filtered) | µg/L | Varies* | 0.1 | ND | ND | No | 1 | 1 |
| Nickel (filtered) | µg/L | Varies* | 7 | ND | ND | No | 1 | 1 |
| Zinc (filtered) | µg/L | Varies* | 15 | ND | ND | No | 1 | 1 |
| Chromium (trivalent) | µg/L | Varies* | 27 | ND | ND | No | 1 | 1 |
| Chromium (hexavalent) | µg/L | Varies* | 4.4 | 4.2 | 4.2 | No | 1 | 1 |
| Acenaphthene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Acenaphthylene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Anthracene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Benz(a)anthracene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Benzo(a)pyrene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Benzo(b)fluoranthene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Benzo(g,h,i)perylene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Benzo(k)fluoranthene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Chrysene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Dibenz(a,h)anthracene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Fluoranthene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Fluorene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Indeno(1,2,3-cd)pyrene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Naphthalene | µg/L | Varies* | 50 | ND | ND | No | 1 | 1 |
| Phenanthrene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Pyrene | µg/L | Varies* | 2 | ND | ND | No | 1 | 1 |
| Total PCB | µg/L | Varies* | N/A | ND | ND | N/A | 1 | 1 |
| Phenol | µg/L | Varies* | 400 | ND | ND | No | 1 | 1 |
| TRH C6-C9 | µg/L | Varies* | 20 | ND | ND | No | 1 | 1 |
| TRH C10-C14 | µg/L | Varies* | 50 | ND | ND | No | 1 | 1 |
| TRH C15-C28 | µg/L | Varies* | 100 | ND | ND | No | 1 | 1 |
| TRH C29-C36 | µg/L | Varies* | 50 | ND | ND | No | 1 | 1 |

N/A – no licence limit, monitoring requirement only ND – not detected

* Once prior to discharge during batch operation; once daily during intermittent continuous operation; once daily for the first fourteen days of continuous operation, then weekly. Currently undertaken per batch.

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



There were no exceedances of turbidity criteria for ambient water quality monitoring in Darling Harbour during the month.

Turbidity

| Monitoring Parameter | EPL Point 10 (NTU) | EPL Point 11 (NTU) |
|----------------------|--------------------|--------------------|
| Minimum | 0.0 | 0.0 |
| Maximum | 29.5 | 8.3 |
| Mean | 6.0 | 2.7 |
| Limit | 63 | 63 |

Conductivity

| Monitoring Parameter | EPL Point 10 (mS/cm) | EPL Point 11 (mS/cm) |
|----------------------|---|----------------------|
| Minimum | 50.0 | 51.4 |
| Maximum | 54.7 | 54.2 |
| Mean | 53.8 | 53.8 |
| Limit | No licence limit, monitoring requirement only | |

pH

| Monitoring Parameter | EPL Point 10 | EPL Point 11 |
|----------------------|---|--------------|
| Minimum | 7.8 | 7.6 |
| Maximum | 8.1 | 8.1 |
| Mean | 8.0 | 7.9 |
| Limit | No licence limit, monitoring requirement only | |

Temperature

| Monitoring Parameter | EPL Point 10 (°C) | EPL Point 11 (°C) |
|----------------------|---|-------------------|
| Minimum | 22.1 | 22.0 |
| Maximum | 25.1 | 25.1 |
| Mean | 23.7 | 23.8 |
| Limit | No licence limit, monitoring requirement only | |

Frequency

| Monitoring Parameter | EPL Point 10 (NF1) | EPL Point 11 (NF2) |
|---|--------------------|--------------------|
| Monitoring frequency required by licence | Every 15 minutes | |
| NTU Samples Collected & Analysed | 73.6% | 85.3% |
| pH Samples Collected & Analysed | 100.0% | 71.9% |
| Conductivity Samples Collected & Analysed | 88.1% | 71.9% |
| Temperature Samples Collected & Analysed | 100.0% | 85.3% |