October 2018 Water Quality Summary Report

One Sydney Harbour – Remediation Works

Licence Number: 13336

Licensee: Barangaroo Delivery Authority

Licensee Address: Level 27, 201 Kent Street, Sydney

Sampling period: 1 to 31 October 2018

Date provided to Licensee: 20 November 2018

Date published: 20 November 2018

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Barangaroo South – Remediation Works

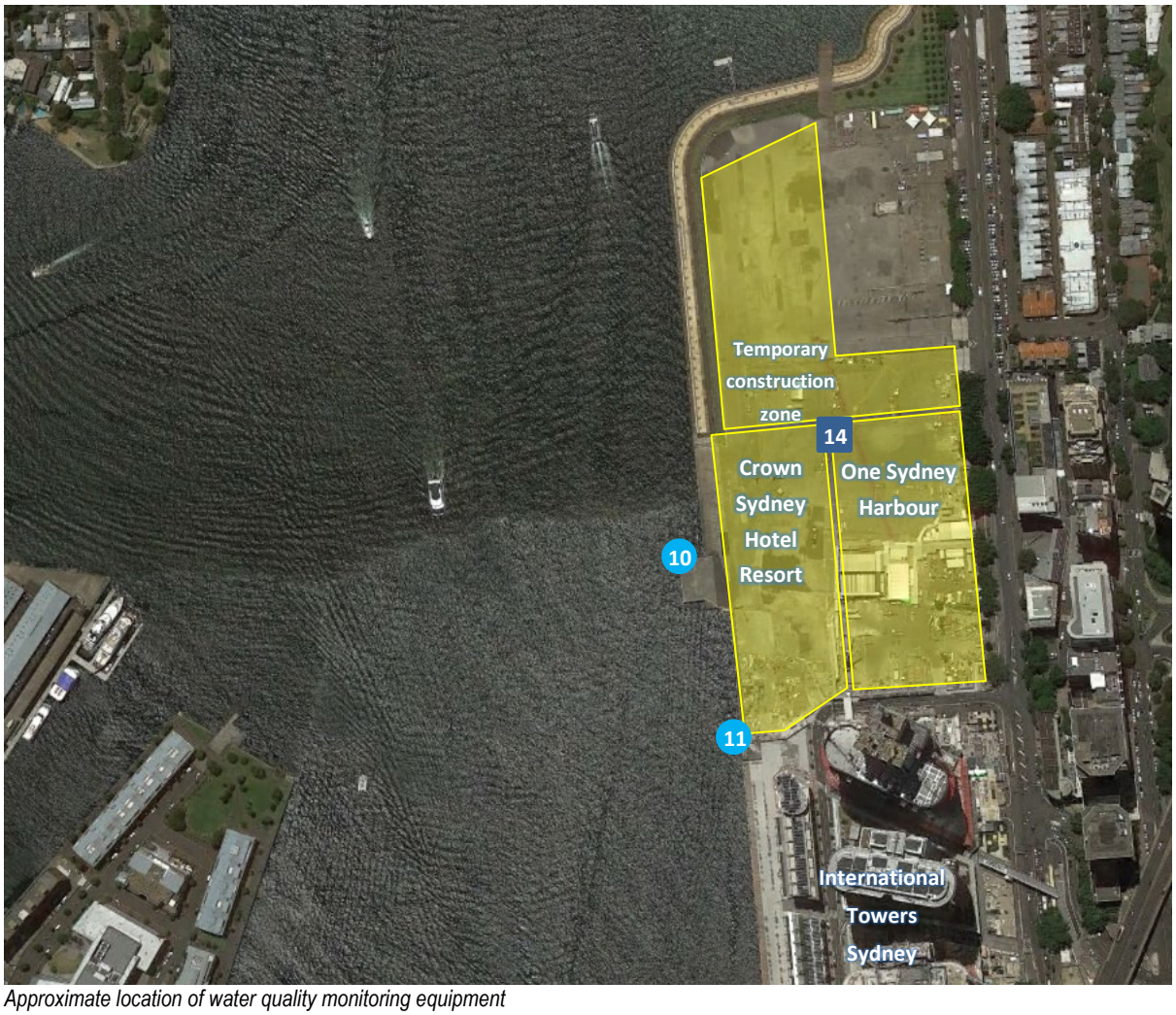
This report has been compiled to summarise results of water quality monitoring at Barangaroo South in October 2018 in accordance with EPL number 13336. This data is for samples taken from 1 to 31 October 2018. The data was provided to the Barangaroo Delivery Authority (the Licencee) on 20 November 2018.

Lendlease 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 14 is the discharge point for the Main water treatment plant (MWTP).

Monitoring results

WTP Discharge

During October, the Water Treatment Plant treated and discharged 11572.15 kL of water to EPL Point 14.

EPL Point 14

Pollutant	Units of measure	Monitoring frequency required by licence	Limit		Min. Value	Max. Value	Median Value	Compliant	No. of Samples:	
			100th %ile	50th %ile					Required	Completed
Volume	kL	Daily	2593	-	228.38	891.91	445.12#	Yes	Daily	Daily
Acenaphthene	µg/L	Varies*	2		ND	ND	0.5	Yes	5	6
Acenaphthylene	µg/L	Varies*	2		ND	ND	0.5	Yes	5	6
Ammonia as N	µg/L	Varies*	1700	910	60	1090	140	Yes	5	6
Anthracene	µg/L	Varies*	2		ND	ND	0.5	Yes	5	6
Arsenic	mg/L	Varies*	0.0232	0.0023	ND	ND	0.00025	Yes	5	6
Benzene	µg/L	Varies*	500		ND	ND	2.5	Yes	5	6
Benz(a)anthracene	µg/L	Varies*	2		ND	ND	0.5	Yes	5	6
Benzo(a) pyrene	µg/L	Varies*	2		ND	ND	0.25	Yes	5	6
Benzo(b+j)fluoranthene	mg/L	Varies*	2		ND	ND	0.0005	Yes	5	6
Benzo(k)fluoranthene	µg/L	Varies*	2		ND	ND	0.5	Yes	5	6
Benzo(g,h,i)perylene	µg/L	Varies*	2		ND	ND	0.5	Yes	5	6
Cadmium	mg/L	Varies*	0.0007		ND	ND	0.0001	Yes	5	6
Chromium (Trivalent)	mg/L	Varies*	0.027		ND	ND	0.0005	Yes	5	6
Chromium (hexavalent)	mg/L	Varies*	0.0044		0.001	0.001	0.0005	Yes	5	6
Chrysene	µg/L	Varies*	2		ND	ND	0.5	Yes	5	6
Copper	mg/L	Varies*	0.0048	0.0013	0.001	0.002	0.001	Yes	5	6
Cyanide (WAD)	mg/L	Varies*	0.014	0.004	0.005	0.013	0.0085	Yes	5	6
Dibenz(a,h)anthracene	µg/L	Varies*	2		ND	ND	0.5	Yes	5	6
Ethylbenzene	µg/L	Varies*	80		ND	ND	2.5	Yes	5	6
Fluoranthene	µg/L	Varies*	2		ND	ND	0.5	Yes	5	6
Fluorene	µg/L	Varies*	2		ND	ND	0.5	Yes	5	6
Indeno(1,2,3-c,d)pyrene	µg/L	Varies*	2		ND	ND	0.5	Yes	5	6
Lead	mg/L	Varies*	0.012	0.0044	ND	ND	0.0001	Yes	5	6
Xylene (m & p)	µg/L	Varies*	75		ND	ND	2.5	Yes	5	6
Mercury	mg/L	Varies*	0.0001		ND	ND	0.00002	Yes	5	6

Naphthalene	µg/L	Varies*	50		ND	ND	0.5	Yes	5	6
Nickel	mg/L	Varies*	0.074		0.0015	0.0046	0.00315	Yes	5	6
Oil and Grease	mg/L	Varies*	10		ND	ND	2.5	Yes	5	6
Xylene (o)	µg/L	Varies*	350		ND	ND	2.5	Yes	5	6
pH (Lab)	pH_Units	Varies*	6.5-8.5		6.84	7.62	7.28	Yes	5	6
Phenanthrene	µg/L	Varies*	2		ND	ND	0.5	Yes	5	6
Phenol	µg/L	Varies*	400		ND	ND	0.5	Yes	5	6
Pyrene	µg/L	Varies*	2		ND	ND	0.5	Yes	5	6
Toluene	µg/L	Varies*	180		ND	ND	2.5	Yes	5	6
TSS	mg/L	Varies*	50		6	7	2.5	Yes	5	6
TPH C10-C14	mg/L	Varies*	0.05		ND	ND	0.025	Yes	5	6
TPH C15-C28	mg/L	Varies*	0.1		ND	ND	0.05	Yes	5	6
TPH C29-C36	mg/L	Varies*	0.05		ND	ND	0.025	Yes	5	6
TRH C6 - C9	µg/L	Varies*	20		ND	ND	50	Yes	5	6
Zinc	mg/L	Varies*	0.043	0.015	ND	ND	0.0025	Yes	5	6
Dissolved Oxygen	mg/L	Varies*			8	9.6	8.8	N/A	5	6
Turbidity	mg/L	Varies*			0.1	0.3	0.2	N/A	5	6
Electrical conductivity	NTU	Varies*			22300	43800	33700	N/A	5	6
PCBs	uS/cm	Varies*			ND	ND	0.5	N/A	5	6

N/A – no licence limit, monitoring requirement only ND – not detected # – Mean used in place of Median

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	0.3	0.0
Maximum	17.8	4.8
Mean	2.2	0.5
Limit	63	63

Conductivity

Monitoring Parameter	EPL Point 10 (mS/cm)	EPL Point 11 (mS/cm)
Minimum	30.2	32.7
Maximum	53.7	54.2
Mean	49.9	49.7
Limit	No licence limit, monitoring requirement only	

pH

Monitoring Parameter	EPL Point 10	EPL Point 11
Minimum	7.67	7.90
Maximum	8.02	8.22
Mean	7.87	8.06
Limit	No licence limit, monitoring requirement only	

Temperature

Monitoring Parameter	EPL Point 10 (°C)	EPL Point 11 (°C)
Minimum	16.87	17.04
Maximum	20.32	20.51
Mean	18.52	18.62
Limit	No licence limit, monitoring requirement only	

Frequency

Monitoring Parameter	EPL Point 10 (%)	EPL Point 11 (%)
Monitoring frequency required by licence	Every 15 minutes	
NTU Samples Collected & Analysed	96.8	97.6
pH Samples Collected & Analysed	98.0	97.6
Conductivity Samples Collected & Analysed	94.6	95.9
Temperature Samples Collected & Analysed	99.2	98.7