

# BOC Kooragang Cooling Tower Wastewater Sampling Report

BOC Limited Kooragang Island

7 April 2015



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## 1 Introduction

BOC Limited Kooragang Island, herein referred to as BOC Kooragang, owns and operates a gas facility for the production and supply of gas products located at 9 Egret Street Kooragang, New South Wales. The facility operates 24 hours per day, 7 days per week. BOC Kooragang holds NSW Environmental Protection Authority (EPA) Environmental Protection Licence (EPL) 20165. The Scheduled Activities in the EPL include chemical storage waste generation, dangerous goods production and general chemicals storage.

BOC Kooragang currently possess two (2) cooling towers onsite. Currently the cooling tower blowdown (waste) water continues to two (2) 10,000 litre capacity storage tanks onsite, totalling a capacity of 20,000 litres storage onsite. The wastewater is collected by an approved waste contractor approximately once per week.

BOC Kooragang are currently in correspondence with Hunter Water regarding the possibility of discharging the cooling tower wastewater to Hunter Water's sewer.

BOC Kooragang submitted an *Application for Developer Services* to Hunter Water in March 2015 with the aim of obtaining preliminary servicing advice. As part of the application Hunter Water was provided with the cooling tower wastewater quality results performed in August 2015.

Hunter Water responded on 26 March 2015 with preliminary servicing advice and general information. Part of the assessment requested BOC Kooragang provide additional water quality information. The analytes requested were confirmed via email from Mr Michael Evans (Tradewaste Engineer) of Hunter Water on 27 March 2015.

MJM Environmental (MJM) was engaged by BOC Kooragang in March 2015 to undertake water sampling and analysis for the analytes requested by Hunter Water.

This report outlines the results of the wastewater sampling.

## 2 Site Identification

BOC Kooragang operates a gas facility located at 9 Egret Street Kooragang, New South Wales. The plant vicinity map and location of the cooling towers and wastewater storage tanks are shown in Figure 2-1 and Figure 2-2.



Figure 2-1: BOC Limited Kooragang Vicinity



Figure 2-2: Location of BOC Limited's Cooling Towers and Wastewater Tanks

### 3 Sampling Plan and Methodology

One (1) representative sample was proposed to be taken from the wastewater tanks for the analytes specified by Hunter Water in the email from Mr Michael Evans dated 27 March 2015, which are:

- Chemical Oxygen Demand (COD); and
- Non-filterable residue (NFR; also referred to as Suspended Solids [SS]).

The sampling was performed on 1 April 2015.

Sampling was performed in accordance with ANZECC monitoring standards (AS/NZS 5667.1:1998 and AS/NZS 5667.11:1998). These procedures include the documentation of the name and location of the sample point, date and time of sample collection, the type of sample point, method of sample collection and sample appearance at the time of collection. The water samples were then transferred into clean plastic bottles provided by a NATA accredited laboratory. The NATA laboratory results are presented in Appendix A and field notes in Appendix B.

### 4 Results

The results for the cooling tower wastewater sampling performed on 1 April 2015 are presented in Table 4-1 below.

Table 4-1: BOC Limited Cooling Tower Wastewater Sampling Results

Analyte	Units	Result (01/04/2015)
Chemical oxygen demand (COD)	mg/L	50
Suspended solids (SS)	mg/L	13

### 5 Discussion

MJM Environmental was engaged by BOC Kooragang to undertake water sampling and analysis for the analytes requested by Hunter Water in March 2015.

The results for the wastewater sample taken on 1 April 2015 are presented above in Table 4-1.

**Appendix A – NATA Laboratory Results**

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1507493</b> <b>Client</b> : <b>MJM ENVIRONMENTAL PTY LTD</b> <b>Contact</b> : MS BRIGID KELLY <b>Address</b> : OFFICE 1, 335 WHARF ROAD NEWCASTLE NSW, AUSTRALIA 2300  <b>E-mail</b> : brigid@mjmenvironmental.com.au <b>Telephone</b> : +61 49264222 <b>Facsimile</b> : +61 02 49252570 <b>Project</b> : 034 1347 <b>Order number</b> : 49264222 <b>C-O-C number</b> : ---- <b>Sampler</b> : A. BUCIOR <b>Site</b> : ----  <b>Quote number</b> : SY/508/14	<b>Page</b> : 1 of 3  <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Peter Keyte <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : peter.keyte@als.com.au <b>Telephone</b> : +61 2 4014 2500 <b>Facsimile</b> : +61 2 4967 7382 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 01-APR-2015 <b>Issue Date</b> : 07-APR-2015  <b>No. of samples received</b> : 1 <b>No. of samples analysed</b> : 1
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Dianne Blane	Laboratory Coordinator (2IC)	Newcastle - Inorganics



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## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- **EP026: High Range LCS for COD invalidated due to all samples analysed under Low Range only.**





### Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Client sample ID

**COOLING TOWER**

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Client sampling date / time

01-APR-2015 09:50

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Compound	CAS Number	LOR	Unit	ES1507493-001	----	----	----	----
<b>EA025: Suspended Solids</b>								
Suspended Solids (SS)	----	5	mg/L	13	----	----	----	----
<b>EP026ST: Chemical Oxygen Demand (Sealed Tube)</b>								
Chemical Oxygen Demand	----	5	mg/L	50	----	----	----	----

**Appendix B – Sampling Field Notes**



# WASTE WATER SAMPLING FORM

Client Name: BOC Limited Kooragang Island

Date 1 4 2015 Time: 9:50  
Day Month Year

Reasons for sampling: Research the possibility of using cooling tower wastewater for irrigation

Location of sampling point: Near cooling towers, close to Egret St

Nature of sampling point  Groundwater  Tradewaste sump  Surface water  
 Stormwater  Other Please specify  
Wastewater stored in 10,000 L Poly Tanks

Sample ID: Cooling Tower

Depth sample taken: 1 m

Sample appearance Clear

Water Level in BH Full 1.2m  
TANK

Volume of sample taken 500 ml

Name of Sampler AB

Method of sampling In-situ bailer

Nature of sample point Storage Tank

COC Reference No. AB010415

Number of Bottles 2

Other comments:  
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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**NOTE: ONE WATER SAMPLING FORM TO BE COMPLETED FOR EACH SAMPLE POINT**