



**Muswellbrook Coal Company Limited**

## **Spontaneous Combustion Report**

**For: Environmental Protection Licence 656**

**Reporting Period: August 2022**

**Authority Holder: Muswellbrook Coal Company Limited**

**Report Date: 22 September 2022**

**Approved by: Brooke York  
Environmental Advisor**



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## 1.0 INTRODUCTION

The coal seams mined by the Muswellbrook Coal Company (MCC) operations are the Greta Coal Measures. These measures have a history of spontaneous combustion. Spontaneous combustion has been a long-term issue at MCC since the first operation commenced in 1907.

A Spontaneous Combustion Management Plan (SCMP) has been prepared according to the specific requirements of the Development Consent. The main objective of the SCMP is to minimise the occurrence of spontaneous combustion and manage the effect by identification, control, removal, mitigation and prevention in the following areas:

- Existing open cut and underground workings;
- Drilling and blasting;
- Mining of overburden;
- Mining of coal;
- Emplacement of overburden;
- Emplacement of washery reject; and
- Coal stockpiles.

The Environment Protection Authority (EPA) require MCC to provide reports on spontaneous combustion management and monitoring on a monthly basis. This report identifies:

- Spontaneous combustion management during the reporting period;
- Gas monitoring results;
- Number of complaints relating to spontaneous combustion;
- Response to hydrogen sulphide levels above the odour threshold; and
- Correlation between spontaneous combustion on site with gas results and complaints received.

## 2.0 SPONTANEOUS COMBUSTION MANAGEMENT MEASURES

The daily spontaneous combustion management measures for the reporting period are shown in **Table 1**.

**Table 1: Spontaneous Combustion Management Measures**

Date	Water Sprays	Water Carts Assisting	Capping	Hot Material Removal	Comments
01/08/22	S25	OC1, ROM			Wet Weather
02/08/22	S24	OC1			
03/08/22	S24	OC1, ROM			
04/08/22	S24	OC1	RL160		Wet Weather
05/08/22	S25	OC1, ROM			
06/08/22	S25	OC1			
07/08/22	S25	OC1			
08/08/22	S25	OC1			
09/08/22	S24	OC1			
10/08/22	S25	OC1	RL140		



Date	Water Sprays	Water Carts Assisting	Capping	Hot Material Removal	Comments
11/08/22	S24	OC1			
12/08/22		OC1			Wet Weather
13/08/22		OC1			Wet Weather
14/08/22		OC1			
15/08/22		OC1			
16/08/22		OC1		S25	
17/08/22		OC1		S24	
18/08/22		OC1, S24		S24	
19/08/22		OC1			
20/08/22		OC1, S24, S25		RL114E	
21/08/22		OC1, ROM		S25	
22/08/22		OC1			
23/08/22		OC1			Wet Weather
24/08/22		OC1			Wet Weather
25/08/22		OC1			
26/08/22		OC1			
27/08/22		OC1			
28/08/22	S24	OC1			
29/08/22	S24	OC1			
30/08/22	S25	OC1			
31/08/22	S25	OC1			

The classification system for spontaneous combustion outbreaks is provided in **Table 2**. A summary of the areas affected by spontaneous combustion and the areas controlled and treated during the reporting period is provided in **Table 3**. The locations of these areas can be seen in **Figure 1** to **Figure 2**.

**Table 2: Classification of Spontaneous Combustion Outbreaks**

Classification	Description
A	Open flame
B	Visible steam or smoke
C	Other physical evidence of spontaneous combustion (e.g. cracks, coal tars, sulphur crusting, etc)

\* - classification revised in November 2019

**Table 3: Summary of Spontaneous Combustion**

Site Map Location	Classification (A-C)	Affected Area Without Active Control (m <sup>2</sup> )	Active Controls Completed	Area Controlled (m <sup>2</sup> )
Open Cut 1	A	55*	Mining	6100**
	B	730*	Capping	0**
	C	195*	Infusion	6100**
Open Cut 2	B	55*	Excavated and replaced	0**
<b>SUMMARY</b>				
Total Area Affected		1035*		
Total Area Controlled		6100**		

\* - at end of reporting period

\*\* - during reporting period

### 3.0 GAS MONITORING RESULTS

The gas monitoring results are displayed graphically in **Figure 3** to **Figure 7**. As noted in these graphs, there were no results above the health impact assessment criteria for the reporting period.

The data capture rates for the reporting period and the last 12 months are shown in **Table 4**.

**Table 4: Data Capture Rates**

Monitoring Location	Pollutant	Averaging Period	Data Capture – August (%)	Data Capture – 12 Month Rolling (%)
Point 9, Nisbet	Hydrogen Sulphide	30 minutes	96.0	96.6
		1 hour	94.4	94.6
		24 hours	100.0	99.2
Point 10, Muscle Creek	Hydrogen Sulphide	30 minutes	97.4	94.6
		1 hour	95.3	92.3
		24 hours	100.0	96.7
Point 15, Nisbet	Sulphur Dioxide	1 hour	92.9	94.5
		24 hours	93.5	98.6
Point 16, Muscle Creek	Sulphur Dioxide	1 hour	95.2	92.5
		24 hours	100.0	96.7

Data capture for all monitoring sites was greater than 90% during August 2022.

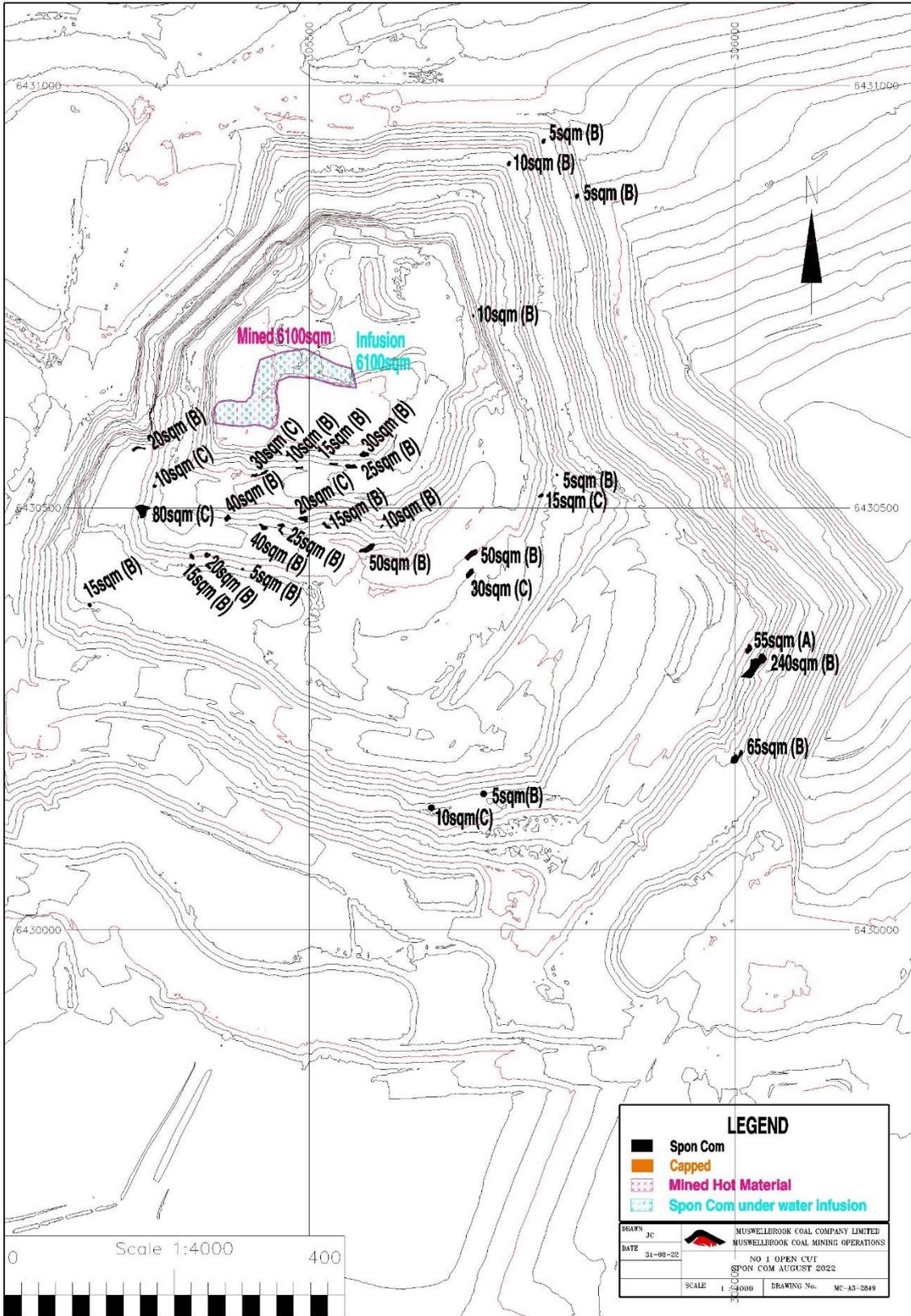


Figure 1: Location of Spontaneous Combustion Outbreaks in Open Cut 1

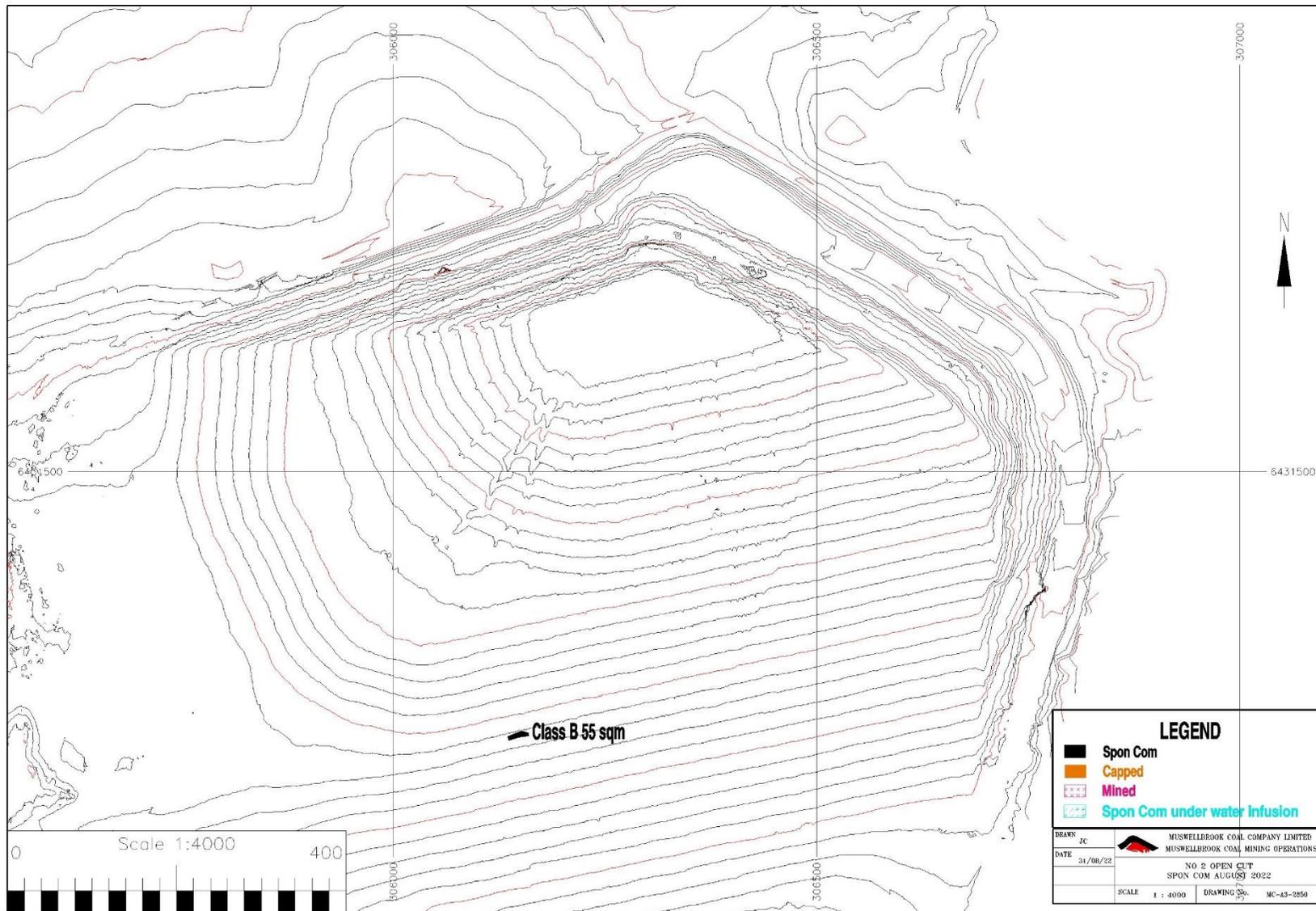


Figure 2: Location of Spontaneous Combustion Outbreaks in Open Cut 2

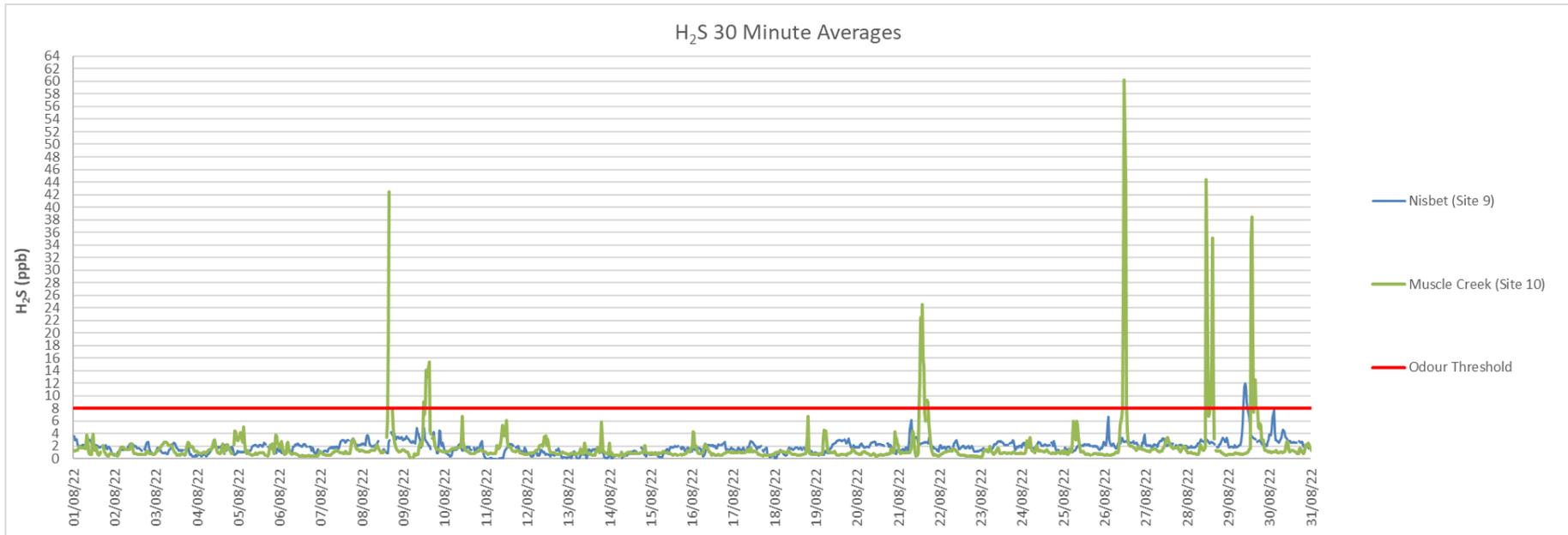


Figure 3: Hydrogen Sulphide 30 Minute Results

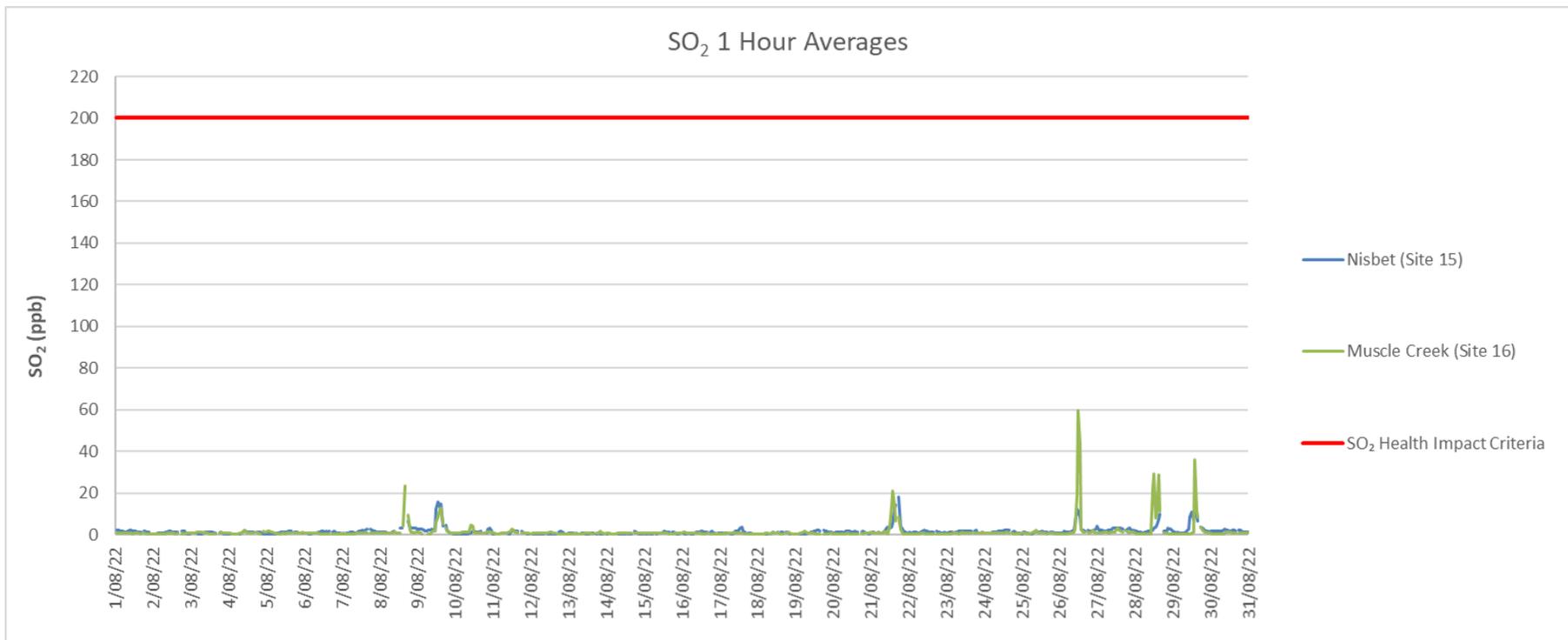


Figure 4: Sulphur Dioxide 1 Hour Results

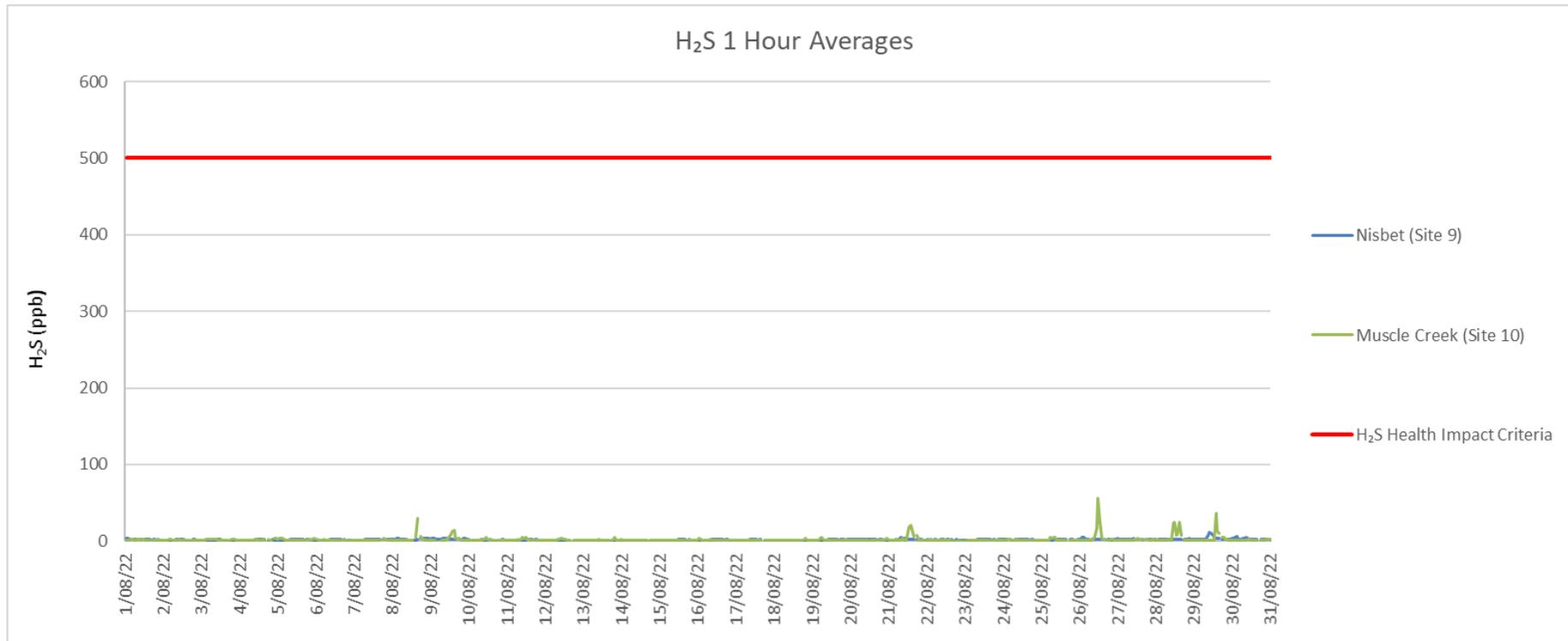


Figure 5: Hydrogen Sulphide 1 Hour Results

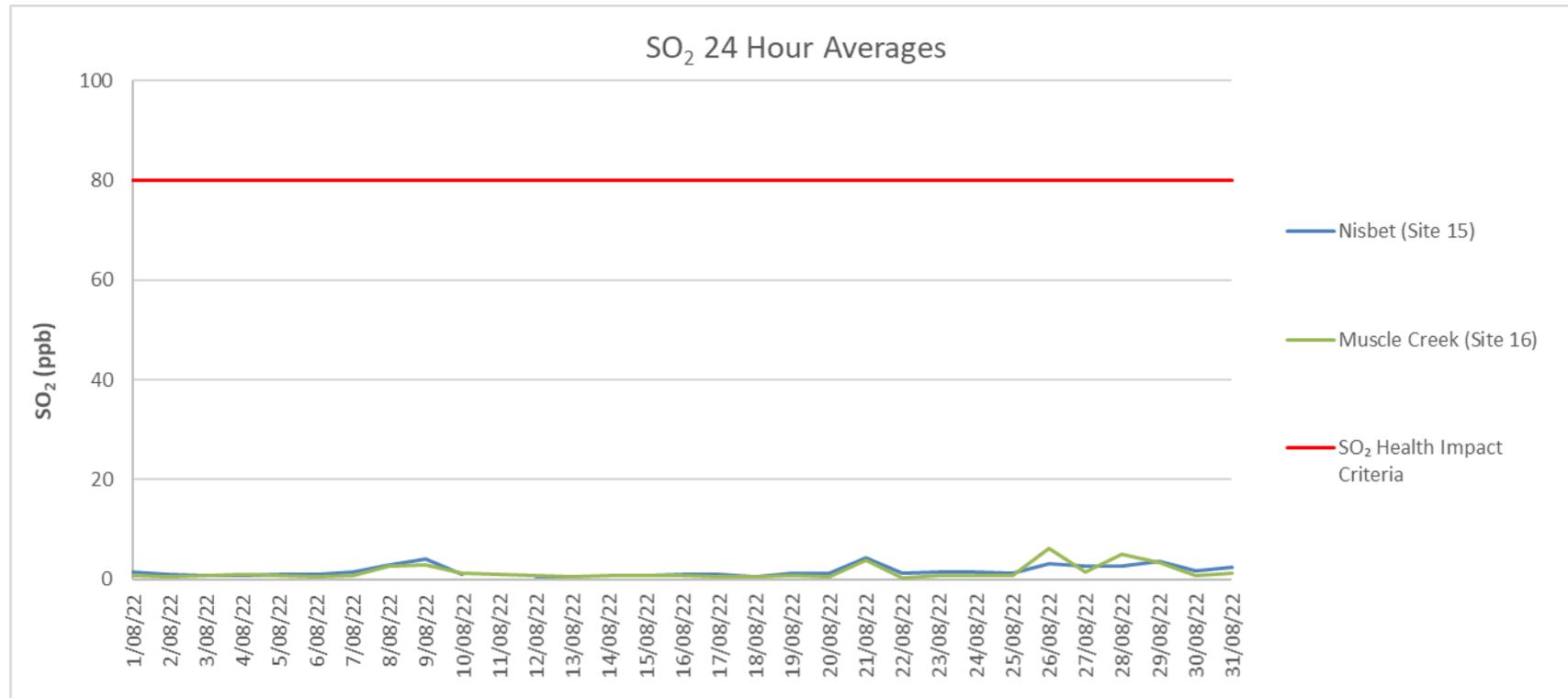


Figure 6: Sulphur Dioxide 24 Hour Results

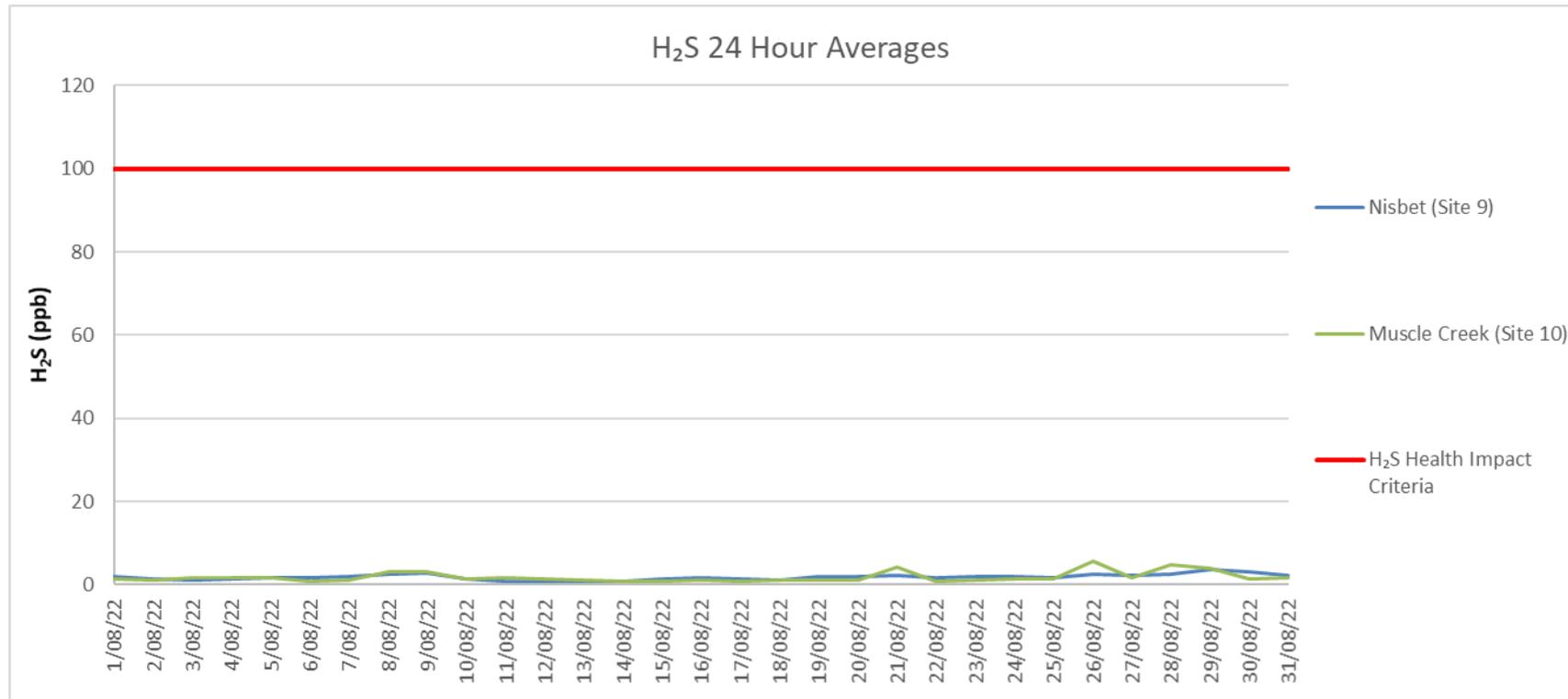


Figure 7: Hydrogen Sulphide 24 Hour Results



#### **4.0 RESPONSE TO ELEVATED GAS LEVELS**

When MCC receive an alarm that the hydrogen sulphide levels at the gas monitors are above the odour threshold of 8ppb, a review of operations and gas sources in the local area is undertaken. There were alarms on 8<sup>th</sup>; 9<sup>th</sup>; 21<sup>st</sup>; 26<sup>th</sup>; 28<sup>th</sup> and 29<sup>th</sup> of August 2022. All possible management controls for spontaneous combustion were being undertaken at the time of the elevated gas levels and operations were modified where possible to reduce the spontaneous combustion emissions.

#### **5.0 CORRELATION BETWEEN MANAGEMENT ACTIVITIES AND GAS LEVELS**

A review of the correlation between spontaneous combustion management activities and gas levels has been undertaken. This review found that spontaneous combustion management activities were occurring and gas levels during the reporting period were generally low.

#### **6.0 CORRELATION BETWEEN COMMUNITY COMPLAINTS AND GAS LEVELS**

There were no odour complaints received during the reporting period.