

12th October 2017

Opus International Consultants (UK) Ltd

P +44 29 2077 7373

Ken Stacey
Neath Port Talbot County Borough Council
The Quays
Brunel Way
Briton Ferry
SA11 2GG

Cardiff Office
Unit 2 Fountain Court, Fountain Lane
St Mellons, Cardiff, CF3 0FB
United Kingdom

Dear Ken,

REF: V-C8602.01-OIC-20171012-NPTCBC-L-01

RE: NPT Harbourside – Addendum Ground Gas Letter Report

1. Introduction

The information contained within this letter is to supplement Report V-C8602.01-OIC-0-XX-RP-02 which was issued prior to completion of the full monitoring regime at the Neath Port Talbot Harbourside site. The report contained results from four of the six scheduled rounds of gas monitoring which had already been carried out at the site by the date of issue of the report.

The results of the final two gas monitoring rounds are discussed in this letter report and confirm the conclusions and recommendations made in V-C8602.01-OIC-0-XX-RP-02 NPT Harbourside Interpretive Geo-environmental Ground Investigation Report.

Also presented is our review of the gas risk and the requirement for gas protection measures.

This assessment has been undertaken in accordance with the following current guidance documents:

- British Standard BS 8485:2015 “Code of Practice for the Characterisation and Remediation from Ground Gas Affected Developments”.
- CIRIA C665 – Assessing risks posed by hazardous ground gases to buildings.
- CIRIA Report 131 ‘The measurement of methane and other gases from the ground’ (1993).

2. Monitoring Results

The results of four of the six scheduled gas monitoring visits to the site completed by Quantum were discussed within report V-C8602.01-OIC-0-XX-RP-02. The results of the final two monitoring visits are detailed below.

During the fifth monitoring visit completed on 21st September 2017 by Quantum, all installations recorded below detection levels of CH₄ and below detection limits CO. The levels of CO₂ recorded ranged between below detection limits and 0.2%. H₂S levels were below detection levels with the exception of BHH03 which measured 1.0ppm. O₂ levels were recorded between 20.7% and 21.0% v/v. No flow was recorded with the exception of 1.0l/hr in BHH03.

During the sixth monitoring visit completed on 27th September 2017, all installations measured 0.2% of CH₄ and below detection limits CO. The levels of CO₂ recorded ranged between 0.4% and 1.6%. H₂S levels were below detection levels with the exception of BHH03 which measured 3.0ppm. O₂ levels were recorded between 17.8% (BHH03) and 21.9% v/v. Flows between -0.7l/hr and 0.9l/hr were recorded across the site.

The final ground gas monitoring results for all six monitoring visits to the site are have been appended for completeness.

3. Conclusions and Selection of Appropriate Protective Measures

Given the ground gas results for the site, the site may be classified as a Characteristic Situation CS2, Low Hazard potential, in accordance with Table 2 of BS8485:2015 and can be considered a Type C Building in accordance with BS8485:2015. A Characteristic Situation of CS2 for the site will require a minimum gas protection score of 2.5.

A Ground Gas Characteristic summary has been appended to this letter report.

No further ground gas monitoring is deemed necessary at the site.

Kind regards,



Gillian Steele
Assistant Geotechnical Engineer



John Peacock
Consultant - Geotechnical Engineer / CDM Advisor

APPENDIX A

Quantum Ground Gas and Groundwater Monitoring Results

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Installation Date:				
GL (mAOD)	Pipe	Type	Installation Depth (mbgl)	Response Zone (mbgl)
8.84	A	50	3.00	2.00

[illegible]

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Installation Date:				
GL (mAOD)	Pipe	Type	Installation Depth (mbgl)	Response Zone (mbgl)
6.65	A Deep	50	8.00	3.00
	B Shallow	50	3.00	2.5

[illegible]

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Project Name:	Harbourside, Port Talbot
Project No.:	G40066
BH/TP No.:	BH03
Instruments Used:	Water Dip Meter Probe, GA2000 Gas Analyser

Installation Date:				
GL (mAOD)	Pipe	Type	Installation Depth (mbgl)	Response Zone (mbgl)
6.27	A	50	2.50	2.00

[illegible]

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Project Name:	Harbourside, Port Talbot
Project No.:	G40066
BH/TP No.:	BH04
Instruments Used:	Water Dip Meter Probe, GA2000 Gas Analyser

Installation Date:				
GL (mAOD)	Pipe	Type	Installation Depth (mbgl)	Response Zone (mbgl)
7.92	A	50	1.00	1.00

[illegible]

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Installation Date:				
GL (mAOD)	Pipe	Type	Installation Depth (mbgl)	Response Zone (mbgl)
6.82	A	50	2.00	1.00

[illegible]

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Installation Date:				
GL (mAOD)	Pipe	Type	Installation Depth (mbgl)	Response Zone (mbgl)
6.96	A Deep	50	8.00	3.00
	B Shallow	50	3.00	2

[illegible]

APPENDIX B

Ground Gas Site Characterisation

GROUND GAS CHARACTERISATION



CLIENT: **Neath Port Talbot County Borough Council**

SITE: **Neath Port Talbot Harbourside**

JOB NO.: **V-C8602.01**

PEAK CONCENTRATIONS

CIRIA Report C665 Site Characterisation (Boyle and Witherington, 2007 classification)

Gas screening value (litres of gas per hour) = max borehole flow rate (l/hr) x max gas concentration (%)

Characterisation by borehole

	BHH01	BHH02(S)	BHH02(D)	BHH03	BHH04	BHH05	BHH06	BHH07(S)	BHH07(D)	MAXIMUM
Methane										
Max borehole flow rate (l/hr):	0.00	0.00	0.00	6.40	0.00	0.00	0.00	0.00	0.00	6.40
Max gas concentration (%):	0.20	0.20	0.20	0.20	0.20	0.20	0.00	0.20	0.20	0.20
GSV (l/hr):	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
Site Characteristic Situation (CIRIA R149):	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Carbon Dioxide										
Max borehole flow rate (l/hr):	0.00	0.00	0.00	6.40	0.00	0.00	0.00	0.00	0.00	6.40
Max gas concentration (%):	3.60	1.60	0.90	0.40	0.90	0.40	0.00	0.40	0.50	3.60
GSV (l/hr):	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.23
Site Characteristic Situation (CIRIA R149):	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00

Worst case situation

Methane

Max borehole flow rate (l/hr):	6.40
Max gas concentration (%):	0.20
GSV (l/hr):	0.01
Site Characteristic Situation (CIRIA R149):	1.00

Carbon Dioxide

Max borehole flow rate (l/hr):	6.40
Max gas concentration (%):	3.60
GSV (l/hr):	0.23
Site Characteristic Situation (CIRIA R149):	2.00

Checked:	GS	Approved:	GS
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