

St Mary the Virgin Primary School
N Church Street, Cardiff
Results of Hazardous Gas and Groundwater Monitoring
(Spot Monitoring)



Project Ref. 7048b.02

Monitoring Event

1

Date:	22/05/2019	Atmospheric Pressure (s)	1,020 mb	Trend:	Falling
Time:	10:00	Atmospheric Pressure (e)	1,018 mb		
Engineer:	CD-BF	Site Status:	Undeveloped		
Weather:	Inclement	Ground Conditions:	Grass		
Instrument:	Gas Data LMSxi G3.18e meter	Next Calibration Due Date	26/02/2020		
Instrument:	Tiger LT	Next Calibration Due Date	23/04/2019		

Well ID:	WS1	Well dia.(m)	50	Date installed:		Response stratum:			
		Well depth (m)	2.20			Groundwater depth (m):	DRY		
Monitored Variables	dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)
Immediate Reading	0.0	0.0	78.5	0.0	0.0	21.4	0.0	0.0	0.5
After 30 Seconds	0.0	0.0	83.2	3.6	0.0	13.2	0.0	0.0	0.4
After 1 Minute	0.0	0.0	83.3	3.9	0.0	12.7	0.0	0.0	0.5
After 2 Minutes	0.0	0.0	83.4	3.9	0.0	12.6	0.0	0.0	0.4
Steady State	0.0	0.0	83.4	3.9	0.0	12.6	0.0	0.0	0.5
	min	0.0	0.0	78.5	0.0	12.6	0.0	0.0	0.4
	max	0.0	0.0	83.4	3.9	21.4	0.0	0.0	0.5
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)					Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr	
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)					Methane:	0.00 L/hr	Carbon Dioxide	0.00039 L/hr	
Comments:									

Well ID:	WS2	Well dia.(m)	50	Date installed:		Response stratum:			
		Well depth (m)	2.40			Groundwater depth (m):	DRY		
Monitored Variables	dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)
Immediate Reading	0.0	0.0	78.6	0.0	0.0	21.3	0.0	0.1	0.7
After 30 Seconds	0.0	0.0	78.6	0.1	0.0	21.2	0.0	0.1	1.0
After 1 Minute	0.0	0.0	78.6	0.4	0.0	20.9	0.0	0.1	0.9
After 2 Minutes	0.0	0.0	78.2	1.0	0.0	20.7	0.0	0.0	0.9
Steady State	0.0	0.0	78.2	1.0	0.0	20.7	0.0	0.0	0.9
	min	0.0	0.0	78.2	0.0	20.7	0.0	0.0	0.7
	max	0.0	0.0	78.6	1.0	21.3	0.0	0.1	1.0
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)					Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr	
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)					Methane:	0.00 L/hr	Carbon Dioxide	0.0001 L/hr	
Comments:									

Well ID:	WS4	Well dia.(m)	50	Date installed:		Response stratum:			
		Well depth (m)	2.50			Groundwater depth (m):	DRY		
Monitored Variables	dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)
Immediate Reading	0.0	0.0	79.1	0.9	0.0	19.9	0.0	0.0	0.0
After 30 Seconds	0.0	0.0	78.1	1.3	0.0	20.5	0.0	0.0	0.0
After 1 Minute	0.0	0.0	78.1	1.2	0.0	20.6	0.0	0.0	0.0
After 2 Minutes	0.0	0.0	78.1	1.1	0.0	20.7	0.0	0.0	0.0
Steady State	0.0	0.0	78.1	1.1	0.0	20.7	0.0	0.0	0.0
	min	0.0	0.0	78.1	0.9	19.9	0.0	0.0	0.0
	max	0.0	0.0	79.1	1.3	20.7	0.0	0.0	0.0
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)					Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr	
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)					Methane:	0.00 L/hr	Carbon Dioxide	0.00011 L/hr	
Comments:									

Well ID:	WS6	Well dia.(m)	50	Date installed:		Response stratum:			
		Well depth (m)	2.40			Groundwater depth (m):	DRY		
Monitored Variables	dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)
Immediate Reading	0.0	0.0	78.6	0.0	0.0	21.3	0.0	0.0	0.1
After 30 Seconds	0.0	0.0	78.8	0.0	0.0	21.1	0.0	0.0	0.0
After 1 Minute	0.0	0.0	78.7	1.7	0.0	19.5	0.0	0.0	0.1
After 2 Minutes	0.0	0.0	78.6	2.0	0.0	19.3	0.0	0.0	0.0
Steady State	0.0	0.0	78.6	2.0	0.0	19.3	0.0	0.0	0.0
	min	0.0	0.0	78.6	0.0	19.3	0.0	0.0	0.0
	max	0.0	0.0	78.8	2.0	21.3	0.0	0.0	0.1
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)					Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr	
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)					Methane:	0.00 L/hr	Carbon Dioxide	0.0002 L/hr	
Comments:									

Well ID:	WS8	Well dia.(m)	50	Date installed:	Response stratum:						
		Well depth (m)	2.00			Groundwater depth (m):					
							DRY				
Monitored Variables	dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)		
Immediate Reading	1.0	0.0	80.4	1.9	0.0	17.6	0.0	0.6	0.2		
After 30 Seconds	0.0	0.0	79.3	2.9	0.0	17.7	0.0	0.4	0.1		
After 1 Minute	1.0	0.0	79.3	3.0	0.0	17.6	0.0	0.6	0.2		
After 2 Minutes	0.0	0.0	79.3	3.0	0.0	17.6	0.0	0.3	0.2		
Steady State	0.0	0.0	79.3	3.0	0.0	17.6	0.0	0.3	0.2		
	<i>min</i>	0.0	0.0	79.3	1.9	0.0	17.6	0.0	0.3	0.0	
	<i>max</i>	1.0	0.0	80.4	3.0	0.0	17.7	0.0	0.6	0.2	
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)					Methane:	0 L/hr	Carbon Dioxide	0.02 L/hr			
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)					Methane:	0.00 L/hr	Carbon Dioxide	0.0093 L/hr			
Comments:											

Well ID:	WS9	Well dia.(m)	50	Date installed:	Response stratum:						
		Well depth (m)	11.00			Groundwater depth (m):					
							2.65				
Monitored Variables	dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)		
Immediate Reading	0.0	0.0	97.2	0.5	0.0	2.3	0.0	0.0	0.7		
After 30 Seconds	0.0	0.0	97.6	0.9	0.0	1.5	0.0	0.0	1.2		
After 1 Minute	0.0	0.0	97.6	0.9	0.0	1.4	0.0	0.0	1.8		
After 2 Minutes	0.0	0.0	97.6	0.9	0.0	1.4	0.0	0.0	2.5		
Steady State	0.0	0.0	97.6	0.9	0.0	1.4	0.0	0.0	2.5		
	<i>min</i>	0.0	0.0	97.2	0.5	0.0	1.4	0.0	0.0	0.0	
	<i>max</i>	0.0	0.0	97.6	0.9	0.0	2.3	0.0	0.0	2.5	
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)					Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr			
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)					Methane:	0.00 L/hr	Carbon Dioxide	0.00009 L/hr			
Comments:											

Well ID:	WS10	Well dia.(m)	50	Date installed:	Response stratum:						
		Well depth (m)	2.70			Groundwater depth (m):					
							2.40				
Monitored Variables	dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)		
Immediate Reading	0.0	0.0	79.8	1.6	0.0	18.5	0.0	0.0	1.2		
After 30 Seconds	0.0	0.0	78.3	3.4	0.0	18.2	0.0	0.0	1.1		
After 1 Minute	0.0	0.0	78.3	3.6	0.0	18.0	0.0	0.0	1.2		
After 2 Minutes	0.0	0.0	78.3	3.6	0.0	18.0	0.0	0.0	1.2		
Steady State	0.0	0.0	78.3	3.6	0.0	18.0	0.0	0.0	1.2		
	<i>min</i>	0.0	0.0	78.3	1.6	0.0	18.0	0.0	0.0	0.0	
	<i>max</i>	0.0	0.0	79.8	3.6	0.0	18.5	0.0	0.0	1.2	
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)					Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr			
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)					Methane:	0.00 L/hr	Carbon Dioxide	0.00036 L/hr			
Comments:											

Well ID:	BH3	Well dia.(m)	50	Date installed:	Response stratum:						
		Well depth (m)	10.00			Groundwater depth (m):					
							2.70				
Monitored Variables	dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)		
Immediate Reading	0.0	0.0	81.6	0.0	0.0	18.3	0.0	0.0	0.2		
After 30 Seconds	0.0	0.0	82.6	0.0	0.0	17.3	0.0	0.0	0.6		
After 1 Minute	0.0	0.0	82.6	0.0	0.0	17.3	0.0	0.0	0.5		
After 2 Minutes	0.0	0.0	82.6	0.0	0.0	17.3	0.0	0.0	0.5		
Steady State	0.0	0.0	82.6	0.0	0.0	17.3	0.0	0.0	0.5		
	<i>min</i>	0.0	0.0	81.6	0.0	0.0	17.3	0.0	0.0	0.0	
	<i>max</i>	0.0	0.0	82.6	0.0	0.0	18.3	0.0	0.0	0.6	
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)					Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr			
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)					Methane:	0.00 L/hr	Carbon Dioxide	0 L/hr			
Comments:											

Key:
dP - differential pressure (well-atmosphere)
LEL - Lower Explosive Limit (methane)
N₂ - nitrogen
CO₂ - carbon dioxide
CH₄ - methane
O₂ - oxygen
H₂S - Hydrogen sulphide
PID - measure of volatile organic compounds

St Mary the Virgin Primary School
N Church Street, Cardiff
Results of Hazardous Gas and Groundwater Monitoring
(Spot Monitoring)
Project Ref. 7048b.02



Monitoring Event

2

Date:	06/06/2019	Atmospheric Pressure (s)	1,009 mb	Trend:	Rising
Time:	10:00	Atmospheric Pressure (e)	1,012 mb		
Engineer:	BF	Site Status:	Undeveloped		
Weather:	Inclement	Ground Conditions:	Grass		
Instrument:	Gas Data LMSxi G3.18e meter	Next Calibration Due Date	26/02/2020		
Instrument:	Tiger LT	Next Calibration Due Date	23/04/2019		

Well ID:	WS1	Well dia.(mm)	50	Date installed:		Response stratum:				
		Well depth (m)	2.70			Groundwater depth (m):	DRY			
Monitored Variables		dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)
Immediate Reading		0.0	0.0	79.0	0.0	0.0	20.9	0.0	0.1	0.5
After 30 Seconds		0.0	0.0	78.7	0.0	0.0	21.2	0.0	0.0	0.1
After 1 Minute		0.0	0.0	78.7	0.0	0.0	21.2	0.0	0.0	0.0
After 2 Minutes		0.0	0.0	78.7	0.0	0.0	21.2	0.0	0.0	0.0
Steady State		0.0	0.0	78.7	0.0	0.0	21.2	0.0	0.0	0.0
		<i>min</i>	0.0	0.0	78.7	0.0	20.9	0.0	0.0	0.0
		<i>max</i>	0.0	0.0	79.0	0.0	21.2	0.0	0.1	0.5
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)						Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr	
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)						Methane:	0.00 L/hr	Carbon Dioxide	0 L/hr	
Comments:										

Well ID:	WS2	Well dia.(mm)	50	Date installed:		Response stratum:				
		Well depth (m)	2.40			Groundwater depth (m):	DRY			
Monitored Variables		dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)
Immediate Reading		0.0	0.0	78.4	0.0	0.0	21.5	0.0	0.0	0.3
After 30 Seconds		0.0	0.0	78.6	0.0	0.0	21.3	0.0	0.0	0.0
After 1 Minute		0.0	0.0	78.7	0.0	0.0	21.2	0.0	0.0	0.0
After 2 Minutes		0.0	0.0	78.7	0.0	0.0	21.2	0.0	0.0	0.0
Steady State		0.0	0.0	78.7	0.0	0.0	21.2	0.0	0.0	0.0
		<i>min</i>	0.0	0.0	78.4	0.0	21.2	0.0	0.0	0.0
		<i>max</i>	0.0	0.0	78.7	0.0	21.5	0.0	0.0	0.3
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)						Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr	
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)						Methane:	0.00 L/hr	Carbon Dioxide	0 L/hr	
Comments:										

Well ID:	WS4	Well dia.(mm)	50	Date installed:		Response stratum:				
		Well depth (m)	2.40			Groundwater depth (m):	DRY			
Monitored Variables		dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)
Immediate Reading		0.0	0.0	79.0	0.0	0.0	20.9	0.0	0.1	0.1
After 30 Seconds		0.0	0.0	78.8	0.0	0.0	21.2	0.0	0.0	0.0
After 1 Minute		0.0	0.0	78.7	0.2	0.0	21.0	0.0	0.0	0.0
After 2 Minutes		0.0	0.0	77.7	2.0	0.0	20.2	0.0	0.0	0.0
Steady State		0.0	0.0	77.7	2.1	0.0	20.1	0.0	0.0	0.0
		<i>min</i>	0.0	0.0	78.1	0.0	20.1	0.0	0.0	0.0
		<i>max</i>	0.0	0.0	79.0	2.1	21.2	0.0	0.1	0.1
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)						Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr	
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)						Methane:	0.00 L/hr	Carbon Dioxide	0.00021 L/hr	
Comments:										

Well ID:	WS6	Well dia.(mm)	50	Date installed:		Response stratum:				
		Well depth (m)	2.67			Groundwater depth (m):	DRY			
Monitored Variables		dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)
Immediate Reading		0.0	0.0	78.9	0.2	0.0	20.8	0.0	0.0	1.1
After 30 Seconds		0.0	0.0	77.8	1.4	0.0	20.7	0.0	0.0	2.4
After 1 Minute		0.0	0.0	77.8	1.4	0.0	20.7	0.0	0.0	2.9
After 2 Minutes		0.0	0.0	77.8	1.4	0.0	20.7	0.0	0.0	3.3
Steady State		0.0	0.0	77.8	1.4	0.0	20.7	0.0	0.0	3.3
		<i>min</i>	0.0	0.0	77.8	0.2	20.7	0.0	0.0	0.0
		<i>max</i>	0.0	0.0	78.9	1.4	20.8	0.0	0.0	3.3
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)						Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr	
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)						Methane:	0.00 L/hr	Carbon Dioxide	0.00014 L/hr	
Comments:										

Well ID:	WS8	Well dia.(mm)	50	Date installed:	Response stratum:						
		Well depth (m)	1.93			Groundwater depth (m):	DRY				
Monitored Variables	dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)		
Immediate Reading	0.0	0.0	78.7	0.2	0.0	20.9	0.0	-0.1	0.2		
After 30 Seconds	0.0	0.0	77.6	3.7	0.0	18.5	0.0	0.0	0.0		
After 1 Minute	0.0	0.0	77.5	3.9	0.0	18.5	0.0	0.1	0.0		
After 2 Minutes	0.0	0.0	77.5	3.9	0.0	18.5	0.0	0.0	0.0		
Steady State	0.0	0.0	77.5	3.9	0.0	18.5	0.0	0.0	0.0		
		<i>min</i>	0.0	0.0	77.5	0.2	0.0	18.5	0.0	-0.1	0.0
		<i>max</i>	0.0	0.0	78.7	3.9	0.0	20.9	0.0	0.1	0.2
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)					Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr			
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)					Methane:	0.00 L/hr	Carbon Dioxide	0.00039 L/hr			
Comments:											

Well ID:	WS9	Well dia.(mm)	50	Date installed:	Response stratum:						
		Well depth (m)	11.00			Groundwater depth (m):	2.70				
Monitored Variables	dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)		
Immediate Reading	0.0	0.0	78.4	0.0	0.0	21.5	0.0	0.0	0.1		
After 30 Seconds	0.0	0.0	95.8	1.2	0.0	3.0	0.0	0.0	0.0		
After 1 Minute	0.0	0.0	96.0	1.2	0.0	2.6	0.0	0.0	0.0		
After 2 Minutes	0.0	0.0	96.0	1.2	0.0	2.6	0.0	0.0	0.0		
Steady State	0.0	0.0	96.0	1.2	0.0	2.6	0.0	0.0	0.0		
		<i>min</i>	0.0	0.0	78.4	0.0	0.0	2.6	0.0	0.0	0.0
		<i>max</i>	0.0	0.0	96.0	1.2	0.0	21.5	0.0	0.0	0.1
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)					Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr			
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)					Methane:	0.00 L/hr	Carbon Dioxide	0.00012 L/hr			
Comments:											

Well ID:	WS10	Well dia.(mm)	50	Date installed:	Response stratum:						
		Well depth (m)	2.70			Groundwater depth (m):	2.40				
Monitored Variables	dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)		
Immediate Reading	0.0	0.0	81.5	0.1	0.0	18.3	0.0	0.0	0.1		
After 30 Seconds	0.0	0.0	76.7	4.5	0.0	18.6	0.0	0.0	0.4		
After 1 Minute	0.0	0.0	76.5	4.9	0.0	18.5	0.0	0.0	0.7		
After 2 Minutes	0.0	0.0	76.5	5.0	0.0	18.4	0.0	0.0	0.7		
Steady State	0.0	0.0	76.5	5.0	0.0	18.4	0.0	0.0	0.7		
		<i>min</i>	0.0	0.0	76.5	0.1	0.0	18.3	0.0	0.0	0.0
		<i>max</i>	0.0	0.0	81.5	5.0	0.0	18.6	0.0	0.0	0.7
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)					Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr			
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)					Methane:	0.00 L/hr	Carbon Dioxide	0.0005 L/hr			
Comments:											

Well ID:	BH3	Well dia.(mm)	50	Date installed:	Response stratum:						
		Well depth (m)				Groundwater depth (m):					
Monitored Variables	dP (Pa)	LEL (%)	N ₂ (%)	CO ₂ (%)	CH ₄ (%)	O ₂ (%)	H ₂ S (ppm)	Flow (L/hr)	PID (ppm)		
Immediate Reading											
After 30 Seconds											
After 1 Minute											
After 2 Minutes											
Steady State											
		<i>min</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
		<i>max</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Borehole Hazardous Gas Flow Rates Q _{hg} (max gas conc)					Methane:	0 L/hr	Carbon Dioxide	0.00 L/hr			
Borehole Hazardous Gas Flow Rates Q _{hg} (steady state gas conc)					Methane:	0.00 L/hr	Carbon Dioxide	0 L/hr			
Comments: Not monitored											

Key:
dP - differential pressure (well-atmosphere)
LEL - Lower Explosive Limit (methane)
N₂ - nitrogen
CO₂ - carbon dioxide
CH₄ - methane
O₂ - oxygen
H₂S - Hydrogen sulphide
PID - measure of volatile organic compounds