

Appendix 10-2- Abstraction Point Data and ZOC's







Water Framework Directive

Groundwater Monitoring Programme

Site Information

Lanesboro - ESB



Lanesboro ESB is a borehole that is part of the Lanesboro public water supply. The borehole is abstracting approximately 2000m³/day.



August 2011

Longford

SITE INFORMATION											
Site Name:	Lanesboro - ESB			County: Longford							
RBD:	Shannon IF	RBD	EU Re	porting Code:							
Easting:	200803	;	GV	VB Name:		Lanesborough					
Northing:	269526	;	G١	GWB Code:		IE_SH_G_135					
Site Use:	Drinking Water	r (PWS)	Drinkin	ing Water Code:		2000PL	2000PUB1009				
Hydrometric Area:	26		10/			Level		Flow			
Townland:	RATHCLI	NE	Monito	oring Network:		N		N			
Ownership:	Longford Co	o Co		-		IN		IN			
	Surveillance		Ope	erational (Point)		Operational		(Diffuse)			
Water Quality Monitoring Network:	N			N			N	· · ·			
	anachara DMC comprises	a harabala at the L	CD nour	r station and a l	further tu	ua harabalaa at Liar	aavaab	See Longohoro			
L Site Comments:	Domments:										
		SITE D	DIREC	FIONS							
Location and Access Information:											
Additional Comments:											
WELL INFORMATION											
Monitoring Point Type:	BH	Abstraction Rate ((m³/d):	2000		Ground Elevation (m OD):	45			
Borehole Log Available:		Total Drilled Depth	(m bgl):			Depth to Bedrock (m bgl):				
Top of Casing (m agl):		Upper Casing Dia (mm):	iameter			Lower Casing Diameter (mm):					
Final Borehole Depth (m		Upper Casing Bo Depth (m bgl)	ottom) :			Lower Casing Bo Depth (m bgl)	ttom):				
Screen Interval (m bgl)	:	Screen Type (PVC,Steel,other):				Screen Slot Size	(mm):				
Grout Type (cement,bentonite):		Grouted above (m	n bgl):			Grout Volume Inje (m³):	ected				
Gravel Pack Interval (m bgl):		Gravel Pack Volum	ne (m³):		(Open Hole Interval	(m bgl):				
Potential Yield (m ³ /day)	:			PH Mc Carthy a	are engin	eers working on the	scheme	9.			
Specific Capacity (m³/d/m):		Comments on Mon Site:	hitoring								
Static Water Level (m bg	ı):										
Scheme Name:	Lanesboro PWS	Number of Abstra Points in the Sch	action eme:	3		Source Report Available		Ν			
Source Report Info:											
Scheme Summary:	Lanesboro consists of t provides approximately	hree boreholes (1 at 2000m³/day. BH 1 a	: ESB an at Lisreev	d 2 at Lisreevag vagh abstracts 1	gh) abstra 1100m³/d	acting approximatel lay and BH 3 abstra	y 4000m icts 800r	ı³/day. ESB BH n³/day.			

HYDROGEOLOGY										
	Soil:		Made/Built land (Made)							
GEOLOGY	Subsoil:				Permeability:	Moderate				
	Bedrock:			Dinantian	Pure Bedded Li	mestones				
HYDROGEOLOGY	Aquifer Category:		R	kc	Vulnerability at Monitoring site:	Н	igh	Flow Regime:	Karstified	
	Estimated ZOC Size (km²):		5.	85	ZOC Delineated By:	ТОВІ	N (CK)	Recharge Estimate (mm/yr):	129	
CONTRIBUTION	ZOCS geology require rate; as	OCS prepared for boreholes at Lisreevagh and ESB. Highly difficult to delineate ZOCs which are based on jeology, topography, abstraction rate and assumed groundwater flow directions (SE-NW / E-W). ZOCs equire considerable field mapping to define flow direction. The ZOC accounts for 100% of the abstraction ate; assumed that there is hydraulic connection with the Shannon.								
Groundwater	Extreme (X)	Extre	me (E)	High	Moderate	Low	High to Low	Unc	lassified	
Vulnerability within ZOC (% area):	3.08	3.65 31.95		31.95	19.67	41.22 0		0.43		
HYDROCHEMISTRY										
Hydrochemical Signature:		Ca-HCO3								
Alkalinity (mg/l HCO3):	Avera	je:		Range:	Information:					
Hardness (mg/l CaCO3):	Avera	je:		Range:						
Conductivity (uS/cm):	Avera	ge:		Range:						
	550		690-741							
Monitoring Record	From	1:		To:						
	200				COECOMEN'					
Pressure (e.g., Nit Phosphates, Abstra	rates, actions):		Diffus	Se RISK A	Typical Conta	aminants:		Phosphate		
Risk Categor	y:	At ris	k, high c	onfidence	GWB Status:		Poor			
		Extre	eme:	Higl	h:	Moderate:	Low:	١	legligible:	
Impact Potential within area):	n 200 (%	0.	00	2.8	4	20.94	33.50		42.72	
OTHER INFORMATION										



Boreholes



Boreholes



Sampling Tap

Data Summary Sheet - July 2011

Disclaimer: The data in this document are based on the best available information and understanding at time of writing. Neither the Environmental Protection Agency, nor the individual bodies supplying data for this document and accompanying maps will be responsible for any loss or damage from the use or interpretation of these data.

Rock Unit Geology Map: GSI, 2009 Aquifer Type Map: GSI, 2009 Groundwater Vulnerability Map: GSI, 2009 Soils & Subsoils Type: Teagasc, 2007 Recharge Map: GSI, 2009 Impact Potential Map: EPA, 2009 Risk Assessment Map: EPA WFD Risk Assessment, 2006 Groundwater Body Status: EPA WFD Status Assessment, 2008 Water Quality Data: EPA WFD Monitoring, 2008

Groundwater Threshold Values

Groundwater threshold values for selected parameters: Nitrate - General Chemical Test/ Drinking Water Test (37.5 mg/l N03) Ammonium - Drinking Water Test (0.175 mg/l N) / Surface Water Test (0.065 mg/l N) Molybdate Reactive Phosphorus (MRP) - Surface Water Test (0.035 mg/l P) Chloride -Saline/Intrusive Test (24 mg/l) / Drinking Water Test (175 mg/l Cl) Electrical Conductivity -Saline/Intrusive Test (800 µS/cm) / Drinking Water Test (1,875 µS/cm) Further information on groundwater threshold values is contained in the Groundwater Regulations (S.I. No.9 of 2010).

General Downgradient Distances

General Downgradient Distances (XL) applied to boreholes sourced in bedrock aquifers are constrained to estimate approximate limits based on data at the GSI. In some cases they may be higher or lower depending on local conditions.

Rk, Rkd, Lk	225 m
Lm	150 m
LI, PI	60 m

It is assumed that groundwater downgradient of a spring cannot flow back up to the spring, however a precautionary 30m buffer is generally applied which allows for instances where pumping under dry weather periods may induce a drawdown or where the ground may be sloping toward the spring from the downgradient side.

Version 0:	Prepared by		Date:	
Version 1:	Prepared by	Tobin (CK)	Date:	Apr 2011
Version 2:	Prepared by		Date:	
Version 3:	Prepared by		Date:	
Version 4:	Prepared by		Date:	

















Water Framework Directive

Groundwater Monitoring Programme

Site Information Lanesboro - Lisreevagh BHs

Lanesboro - Lisreevagh comprises two boreholes abstracting approximately 1900m³/day. There is also a site folder for Lanesboro - ESB.



August 2011

Longford

SITE INFORMATION												
Site Name:	Lanesboro - Lisreevagh BHs			County: Longford								
RBD:	Shannon IF	RBD	EU Re	porting Code:								
Easting:	201066	i	G١	VB Name:		Lanesborough						
Northing:	265549		G١	NB Code:		IE_SH_0						
Site Use:	Drinking Water	· (PWS)	Drinkin	g Water Code:	ater Code: 20		PUB1009					
Hydrometric Area:	26		Wa	ater Level		Level		Flow				
Townland:	LISREEVA	GH	Monitoring Network			N		N				
Ownership:	Longford Co	. Co.										
Water Quality	Surveillance		Ope	erational (Point)		Operational		(Diffuse)				
Monitoring Network:	Ν			Ν			Ν					
Site Comments:	Lanesboro PWS comprises Lisreevagh.	nesboro PWS comprises a borehole at the ESB power station and a further two boreholes at Lisreevagh - See Lanesboro sreevagh.										
		SITE	DIREC	FIONS								
Location and Access Information: In Lanesborough, take a last left before the river Shannon and approximately 3.8km south take another left and the boreholes are approximately 500m along the narrow road.												
Additional Comments:												
		WELL I	NFOR	NATION								
Monitoring Point Type	: BH	Abstraction Rate ((m³/d):	1900		Ground Elevation (m OD):	60				
Borehole Log Available:		Total Drilled Depth	(m bgl):			Depth to Bedrock (m bgl):					
Top of Casing (m agl)		Upper Casing Dia (mm):	meter			Lower Casing Diar (mm):	meter					
Final Borehole Depth (n	n):	Upper Casing Bo Depth (m bgl)	ottom) :			Lower Casing Bo Depth (m bgl)	ttom):					
Screen Interval (m bgl)):	Screen Type (PVC,Steel,other):				Screen Slot Size	(mm):					
Grout Type (cement,bentonite):		Grouted above (n	n bgl):			Grout Volume Inje (m³):	ected					
Gravel Pack Interval (n bgl):	ı	Gravel Pack Volum	ne (m³):			Open Hole Interval	(m bgl):					
Potential Yield (m³/day):			PH Mc Carthy a	ire engir	neers working on the	scheme	9.				
Specific Capacity (m³/d/m):		Comments on Monitoring Site:										
Static Water Level (m bo	gl):											
Scheme Name:	Lanesborough PWS	Number of Abstra Points in the Sch	action neme:	3		Source Report Available		N				
Source Report Info:		-										
Scheme Summary:	Lanesboro consists of t provides approximately	hree boreholes (1 at 2000m³/day. BH 1 a	t ESB an at Lisree	d 2 at Lisreevag vagh abstracts 1	ŋh) abstr 100m³/ơ	acting approximatel day and BH 3 abstra	y 4000m Icts 800r	³/day. ESB BH n³/day.				

HYDROGEOLOGY											
	Soil:		Deep well drained mineral (BminDW)								
GEOLOGY	Subsoil:			Tills	Permeability:	Moderate					
	Bedrock:			Dinantian	Pure Bedded Li	mestones					
HYDROGEOLOGY	Aquifer Category:		R	kc	Vulnerability at Monitoring site:	н	igh	Flow Regime:	Karstified		
	Estimated ZOC Size (km ²):		9.1	64	ZOC Delineated By:	TOBIN (CK)		Recharge Estimate (mm/yr):	295		
CONTRIBUTION	ZOC Delineation Comments:	ZOCS p geology require	orepared , topogr conside	l for boreholes a aphy, abstractio rable field mapp	t Lisreevagh and n rates and assi ing to define flow	d ESB. Highly d Jmed groundwa w direction. ZOC	ifficult to delineat iter flow direction caccommodates	e ZOCs which a s (SE-NW / E-W >150% abstrac	re based on ′). ZOCs tion rate.		
Groundwater	Extreme (X)	Extrer	ne (E)	High	Moderate	Low	High to Low	Unc	assified		
ZOC (% area):	7.12	14	.56	71.22	2.79	3.24	0	1.07			
HYDROCHEMISTRY											
Hydrochemical Signature:		Ca-F	ICO3		Additional Water						
Alkalinity (mg/l HCO3):	Averaç	e:		Range:	Information:						
Hardness (mg/l CaCO3):	Averaç	je:		Range:							
Conductivity (uS/cm):	Averaç	je:		Range:							
	550			690-741							
Monitoring Record	From	:		To:							
Period:	2001			2007							
				RISK A	SSESSMEN	Т					
Pressure (e.g., Nit Phosphates, Abstra	rates, ictions):		Diffus	e e	Typical Contaminants:		Phosphate				
Risk Category	y:	At risl	k, high c	onfidence	GWB St	atus:	Poor				
Impact Detential within		Extre	eme:	High	n:	Moderate:	Low:	Ν	legligible:		
area):		0.(00	20.4	42 71.32		4.26		4.00		
OTHER INFORMATION											







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