



MCERTS TDV Report

Prenteg WwTW

04 December 2024

Report No. CFS/16530



Site Name:	Prenteg WwTW	
Consent/Permit Holder:	Dŵr Cymru Welsh Water	
Site Address:	Track Off B4410 Prenteg Porthmadog LL49 9SP	
Site Contact:	Morgan Rees-Godwin	
Contact Phone Number:	07387 548820	
Site Ref or Postcode:	LL49 9SP	
Grid Ref:	SH 59030 41392	
Consent/Permit No:	CG0015001	
Location of Flow Measurement:	Final Effluent	
Number of flow meters:	This is the only meter in the certified measurement system	
Type of flow meter:	Siemens Mag 6000	
Meter Serial Number(s) :	N1PO115102	
Sensor Serial Number(s):	440703H314	
Date of Inspection:	04 December 2024	
Inspector:	Phil Rose - MI 10 018	
Inspection Report No:	CFS/16530	
Survey Pack:	Kit D	* Kit Inventory and calibration data recorded on central QMS database
Site Total Daily Uncertainty:	5.41%	
Site Compliance:	Following a site inspection the measurement system was found to meet the requirements of the Environment Agency Minimum Requirements for the self-monitoring of flow: MCERTS performance standard - Published 28th August 2024	

Site Details

Site Description
Prenteg WwTW is a biological sewage treatment works.

Location of Flow meter(s)
Flow measurement is located at the Final Effluent and consists of a magnetic flow meter, Siemens Mag 6000

Emission point(s) requiring flow measurement
MCERTS TDV DWF Consent = 215 m ³ /Day

Verification/Calibration
A portable clamp-on ultrasonic meter was installed on the pipe crown to prove full pipe conditions, and to compare flow rates. The diagnostic readings confirmed the data as suitable. Spot readings and total were recorded; and the error assessed.

Site maintenance arrangements, evidence and suitability
A routine maintenance schedule has been implemented as part of the consent holders Quality Management System, as audited by SIRA. The flow measurement system was found to be in a satisfactory condition at the time of the Inspection. The inside of the pipe was not inspected and no evidence was presented as to the condition in the pipe.

Comments about the installation and/or MI judgement
This is a first time MCERTS for UMON5

N1P0115102

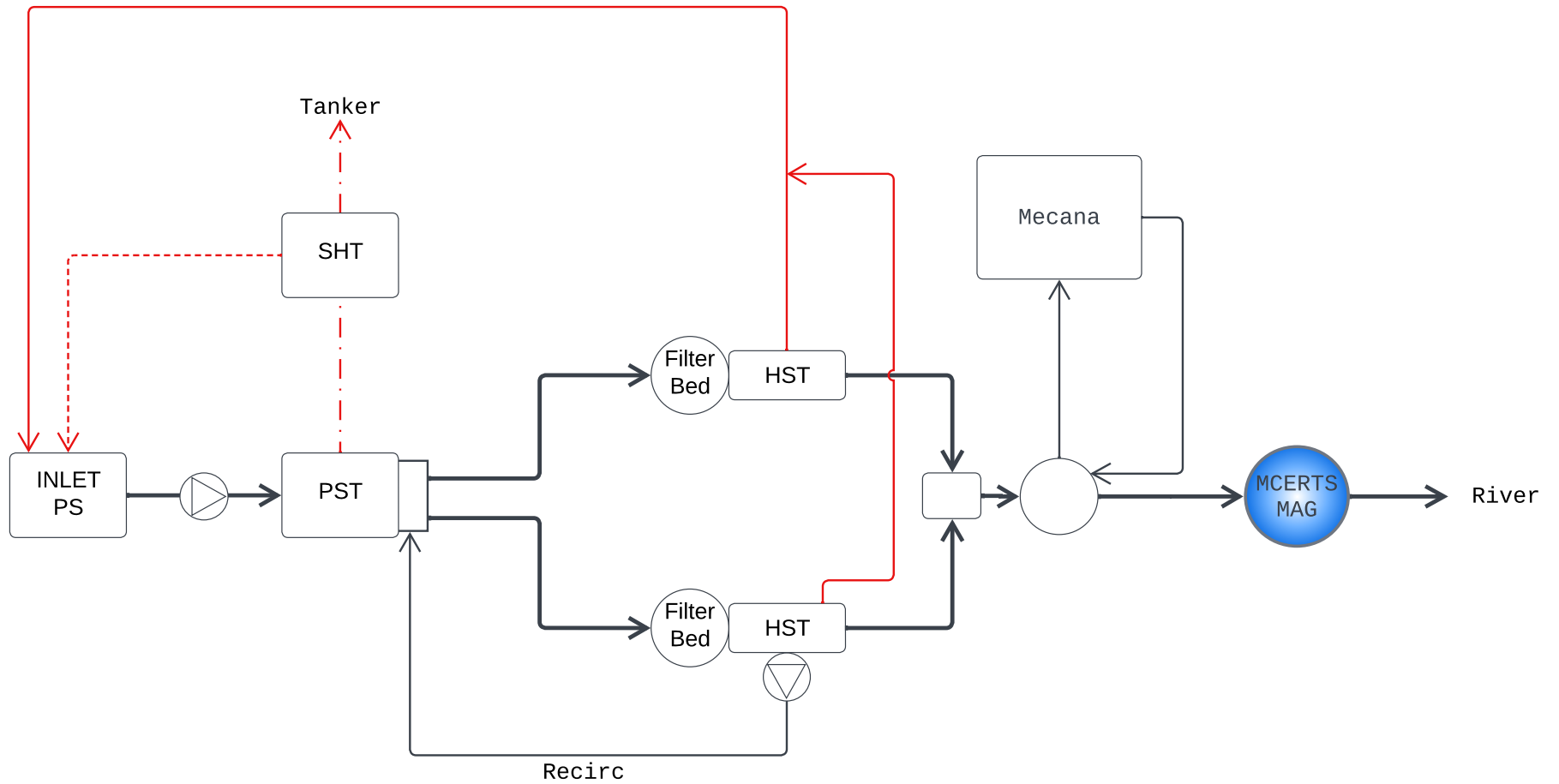


Flow Meter Location and Serial Number

440703H314



Sensor Location and Serial Number

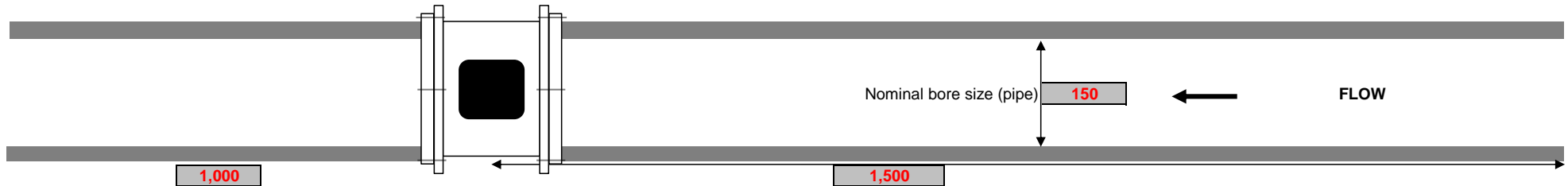


TREATED FLOW
 STORM FLOW
 STORM OVERFLOW
 HUMUS RETURNS
 TOP LIQUORS
 DE SLUDGE
 Process interpreted from site visit
 and has not been confirmed

		Critical Flow Systems Ltd	
Prenteg WwTW			
22/10/2024		SITE OWNER	
Rev .		DCWW	
		B	

Site Survey Data

Site Name		Pretegg WwTW			Flow Meter	Siemens Mag 6000	Location	Final Effluent
Date		04-Dec-24			Sensor type	Mag 5100W		
Profile	Pumped	C	Daily uncertainty	5.41%	CUV	N/a	Sensor Potted	Y
							Chamber Flooded	N



Sensor Installation	
Suitable location?	Y
Accessible?	NC1
4/20mA rescaled?	N
Profibus used?	N
4/20mA range (l/s)	10
Expected maximum flow (l/s)	5
Pumped/pulsed flow?	Y
Typical flow rate	2.5
Transmission error (%)	2
Full pipe?	Y
Entrapped air?	N
Stable flow conditions?	Y
Correct alignment?	Y
Integrated earthing?	Y
Earthing rings fitted?	N
Cable damaged?	N
Excitation frequency (Hz)	6.25
Est. of scum lining (mm)	1

Verification	
Verified?	Y
Instantaneous flow rate error	0.37%
Totalised flow rate error	

Sensor (label)	
Cal.factor	14.8147
Sensor size	150
Transmitter	
Cal. factor	14.8147
Sensor size	150
Sensorprom installed	Y

Installation & set-up (limits taken from flow meter specifications)			
Q (l/s) >	0.1	at minimum flow	Ok
Qmax <	177.0	l/s	Ok
4/20mA range			Ok
Suitable location			Ok
Upstream length >	5 X	diameter	Ok
Downstream length >	2 X	diameter	Ok
Matching calibration factors			Ok
Programmed sensor size			Ok
Full pipe			Ok
Stable flow conditions			Ok
Correct alignment			Ok
Entrapped air			Ok
Cable condition			Ok
Correct earthing			Ok
Earthing method			Transducer
Sensorprom installation			Ok
Excitation frequency			Ok

Version No. 24.3

Dimensions in mm unless otherwise stated

Verification Details

Site	Prenteg WwTW	Flow Meter	Siemens Mag 6000
Location	Final Effluent	Date	04-Dec-24

Method of Verification	
Nivus Wedge	
Nivus Tube	
Clamp on FM	Y
Tank Fill	
Drop Test	
Two channel	
Other	

Details
A portable clamp-on ultrasonic meter was installed on the pipe crown to prove full pipe conditions, and to compare flow rates. The diagnostic readings confirmed the data as suitable. Spot readings and total were recorded; and the error assessed.

Instantaneous Readings (5 Min)

	Siemens Mag 6000	Clamp on FM
1	1.29	1.28
2	1.41	1.41
3	1.51	1.45
4	1.55	1.56
5	1.65	1.63
6	1.75	1.74
7	1.81	1.82
8	1.91	1.94
9	2.01	2.05
10	2.15	2.17
11	2.25	2.27
12	2.35	2.4
13		
14		
15		
16		
17		
18		
19		
20		

Totaliser

Siemens Mag 6000	Clamp on FM	
		Start
		Finish

Totaliser

Siemens Mag 6000	Clamp on FM	
		Start
		Finish

Totaliser

Siemens Mag 6000	Clamp on FM	
		Start
		Finish

Ave.	1.8	1.8
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			Ave.
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Instantaneous Error
0.37%

Totalised Error

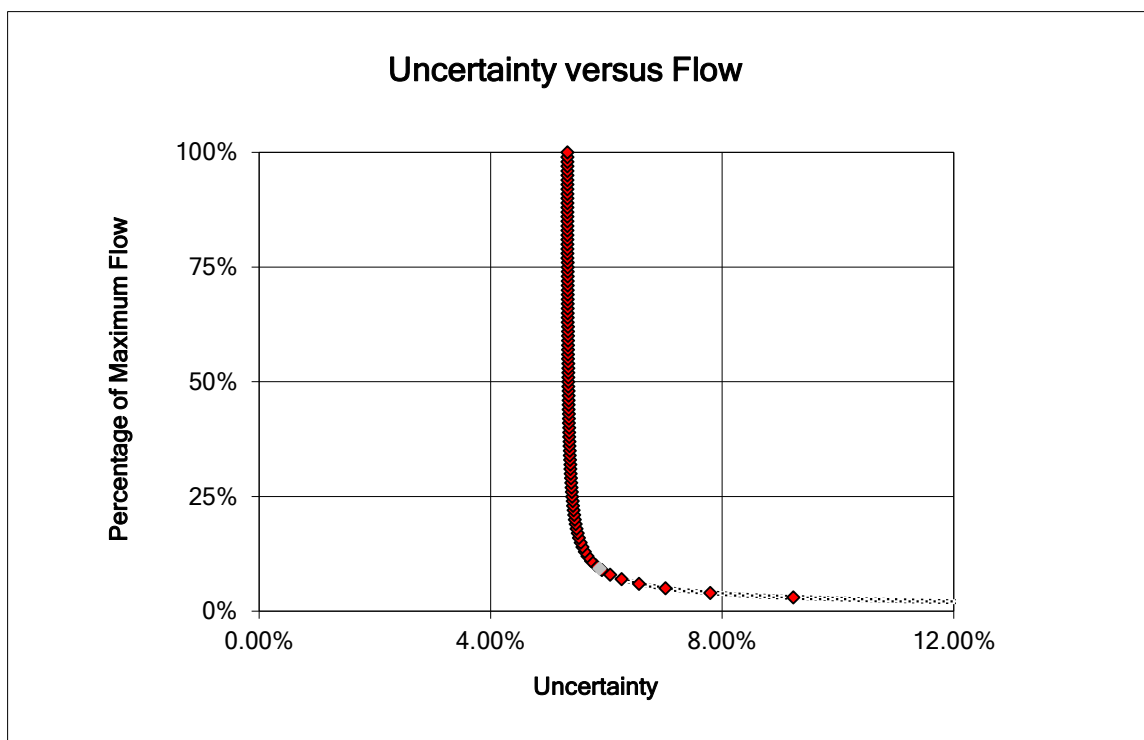
Combined total variation.
0.4%

Comments

Uncertainty Analysis

Site	Prenteg WwTW	Flow Meter	Siemens Mag 6000
Location	Final Effluent	Date	04-Dec-24

Error	Symbol	% of Total Flow			
		25%	50%	75%	100%
Velocity Measurement	Xv	0.88%	0.44%	0.29%	0.25%
Analogue Output	Xo	0.10%	0.07%	0.05%	0.04%
Transmitter + Analogue temp.	Xt(t) + Xt(o)	0.16%	0.16%	0.16%	0.16%
Cross Sectional Area	X _{area}	2.65%	2.65%	2.65%	2.65%
Sensor temp.	Xt(s)	0.03%	0.03%	0.03%	0.03%
Pressure effect	Xp	0.15%	0.15%	0.15%	0.15%
Transmission Errors		2.00%	2.00%	2.00%	2.00%
Upstream Profile	Xpr(u)	2.06%	2.06%	2.06%	2.06%
Downstream Profile	Xpr(d)	0.00%	0.00%	0.00%	0.00%
Electronic Cal. Cert.		3.00%	3.00%	3.00%	3.00%
Pumped Flow (ramp up/down)		2.00%	2.00%	2.00%	2.00%
Arbitrary		0.00%	0.00%	0.00%	0.00%
Total	Xtotal	5.41%	5.34%	5.33%	5.33%



The total daily uncertainty for this site is:	5.41%
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The Critical Uncertainty Volume is:	N/a
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