



MCERTS Report

ALUK Chepstow

08 December 2021

Report No. CFS/10156





Site Information



Site Name:	ALUK Chepstow	
Consent/Permit Holder:	ALUK Chepstow	
Site Address:	Newhouse Farm Industrial Estate Chepstow Monmouthshire NP16 6UD	
Site Contact:	Anna Plesnair	
Contact Phone Number:	07909 254093	
Site Ref or Postcode:	NP16 6UD	
Grid Ref:	ST 52967 91051	
Consent/Permit No:	EPR/BB3790FX	
Location of Flow Measurement:	Flow to Sewer	
Number of flow meters:	This is the only meter in the certified measurement system	
Type of flow meter:	Siemens Mag 5000	
Meter Serial Number(s) :	N1MO270186	
Sensor Serial Number(s):	177303H430	
Date of Inspection:	08 December 2021	
Inspector:	Marcus Harding MI 05 013	
Inspection Report No:	CFS/10156	
Survey Pack:	Kit B	* Kit Inventory and calibration data recorded on central QMS database
Site Total Daily Uncertainty:	6.45%	
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 effluent flow - Version 4.0 - August 2014	

Site Details

Site Description
ALUK Chepstow is an industrial site that manufactures aluminium products.
Location of Flow meter(s)
Flow measurement is located at the Flow to Sewer and consists of a magnetic flow meter, Siemens Mag 5000
Emission point(s) requiring flow measurement
Discharge point S1
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 good condition at the time of the Inspection.
Comments about the installation and/or MI judgement
This is a new installation

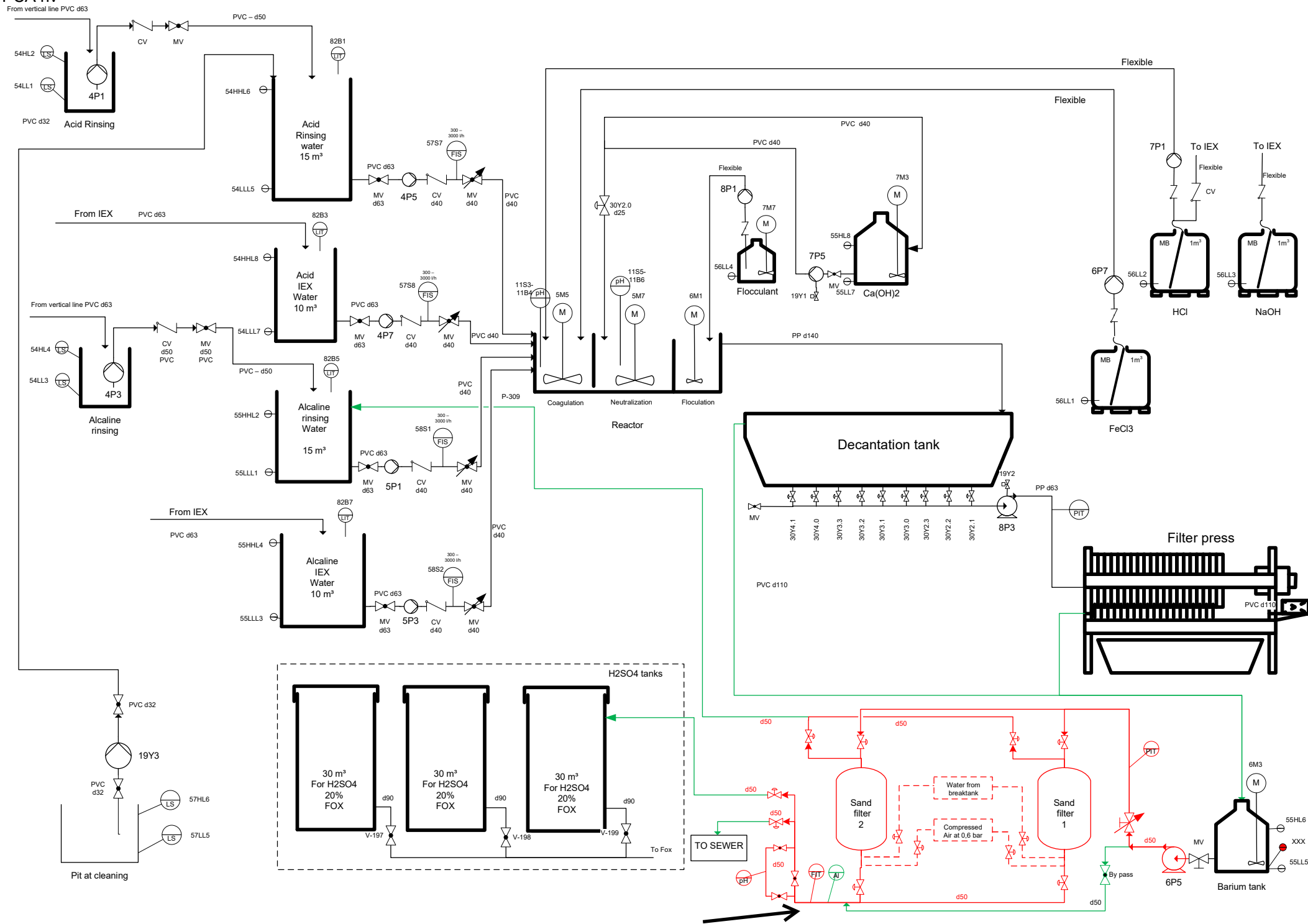


MAG5000 Flow Meter



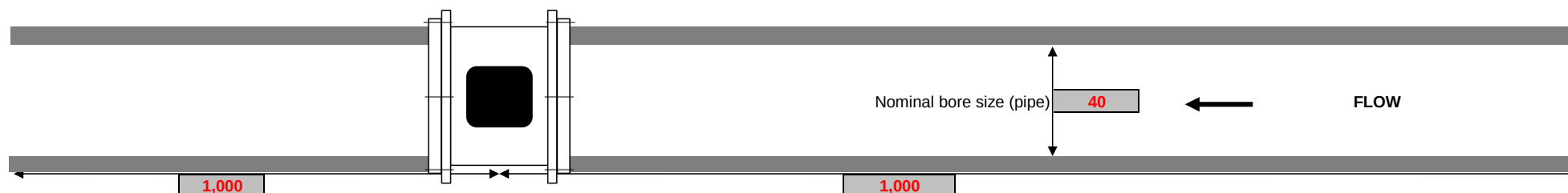
Flow Measurement Location

PCA nv



Site Survey Data

Site Name		ALUK Chepstow			Flow Meter		Siemens Mag 5000		Location	Flow to Sewer
Date		08-Dec-21			Sensor type		Mag 5100W			
Profile	Pumped	C	Daily uncertainty	6.45%		CUV	Not applicable			



Sensor Installation					
Suitable location?	Y	Full pipe?	Y	Stable flow conditions?	Y
Accessible?	Y	Entrapped air?	N	Correct alignment?	Y
4/20mA rescaled?	N				
Profibus used?	N				
4/20mA range (m ³ /h)	12	The calibrated maximum flow rate is high compared to the expected maximum flow rate			
Expected maximum flow (m ³ /h)	4.5				
Pumped/pulsed flow?	Y	Excitation frequency (Hz)	12.5	Integrated earthing?	Y
Typical flow rate	4.5	Est. of scum lining (mm)	0.5	Earthing rings fitted?	N
Transmission error (%)	2	Cable damaged?			

Verification	
Verified?	Y
Instantaneous flow rate error	3.64%
Totalised flow rate error	

Sensor (label)	
Cal.factor	1.447085
Sensor size	40
Transmitter	
Cal. factor	1.447085
Sensor size	40
Sensorprom installed	Y

Installation & set-up (limits taken from flow meter specifications)			
Q (CuM/Hr) >	0.0	at minimum flow	Ok
Qmax <	45.0	CuM/Hr	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. 11.1

Dimensions in mm unless otherwise stated

Verification Details

Site	ALUK Chepstow	Flow Meter	Siemens Mag 5000
Location	Flow to Sewer	Date	08-Dec-21

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 5000	Clamp on FM
1	4.51
2	4.5
3	4.51
4	4.5
5	4.5
6	4.5
7	4.51
8	4.5
9	4.5
10	4.51
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Totaliser	
Siemens Mag 5000	Clamp on FM

Start
Finish

Totaliser	
Siemens Mag 5000	Clamp on FM

Start
Finish

Totaliser	
Siemens Mag 5000	Clamp on FM

Start
Finish

Ave.	4.5	4.3
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		Ave.
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Instantaneous Error
3.64%

Totalised Error

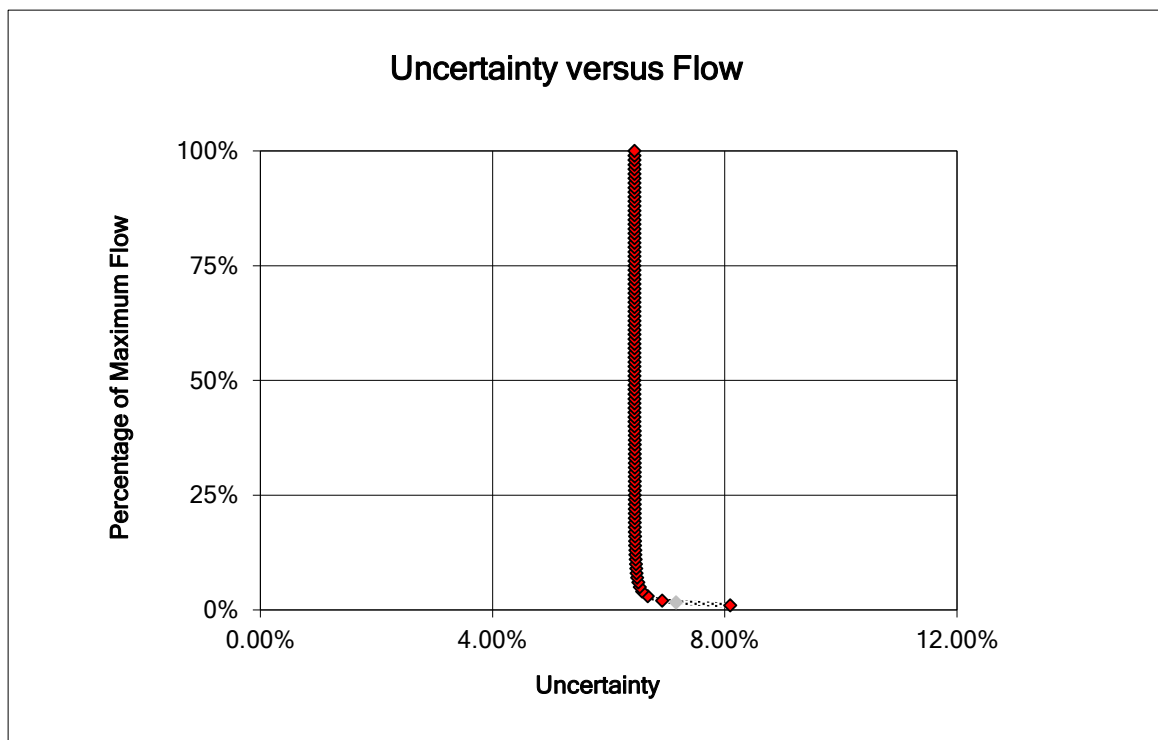
Combined total variation.
3.6%

Comments

Uncertainty Analysis

Site	ALUK Chepstow	Flow Meter	Siemens Mag 5000
Location	Flow to Sewer	Date	08-Dec-21

Error	Symbol	% of Total Flow			
		25%	50%	75%	100%
Velocity Measurement	X_v	0.25%	0.25%	0.25%	0.25%
Analogue Output	X_o	0.10%	0.07%	0.05%	0.04%
Transmitter + Analogue temp.	$X_t(t) + X_t(o)$	0.16%	0.16%	0.16%	0.16%
Cross Sectional Area	X_{area}	4.94%	4.94%	4.94%	4.94%
Sensor temp.	$X_t(s)$	0.03%	0.03%	0.03%	0.03%
Pressure effect	X_p	0.15%	0.15%	0.15%	0.15%
Transmission Errors		2.00%	2.00%	2.00%	2.00%
Upstream Profile	$X_{pr}(u)$	0.23%	0.23%	0.23%	0.23%
Downstream Profile	$X_{pr}(d)$	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	X_{total}	6.45%	6.45%	6.45%	6.45%



The total daily uncertainty for this site is:	6.45%
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The Critical Uncertainty Volume is:	Not applicable
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