Compliance data management

Presentation for Water NZ conference

17-20 September 2019

neo consulting

ELECTRICAL ENGINEERS

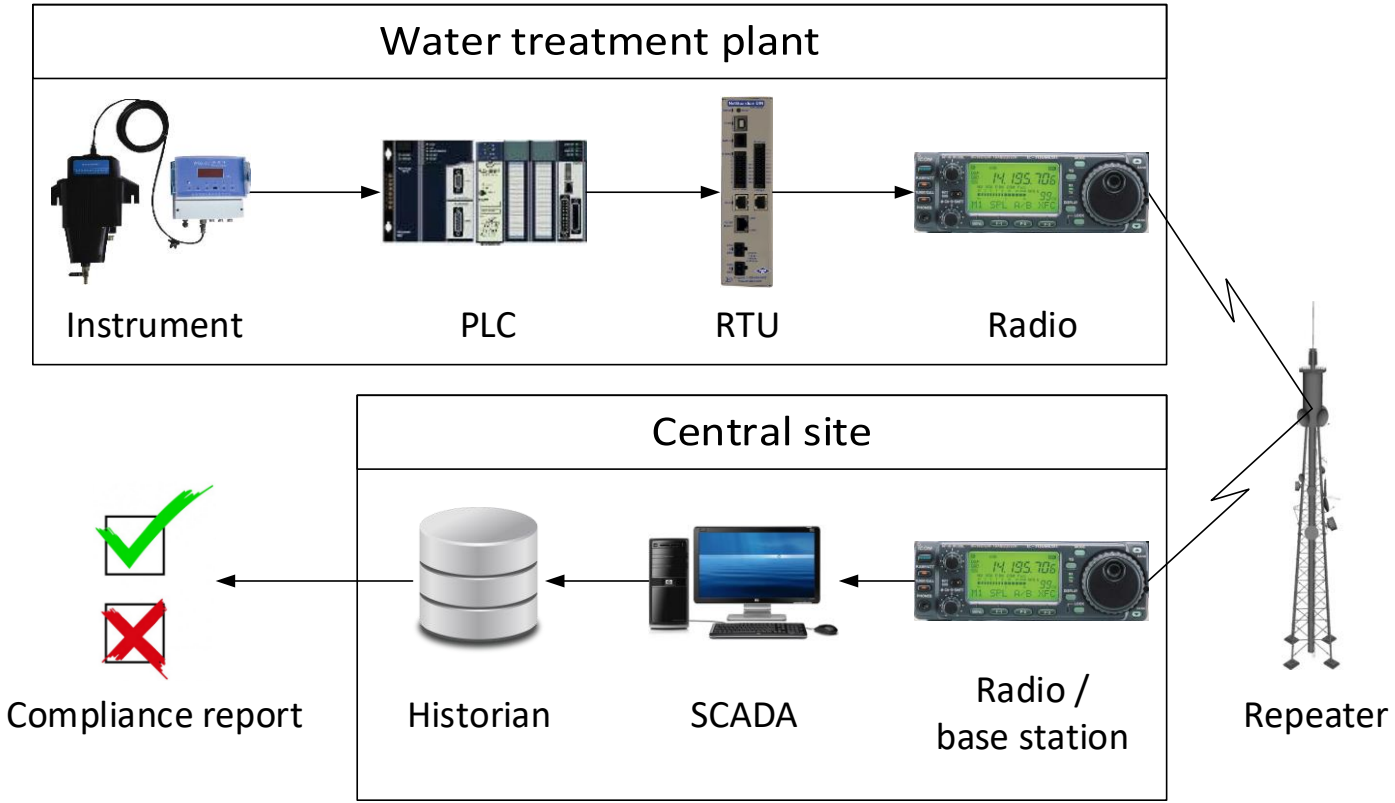
What's behind a compliance report?

Instrument

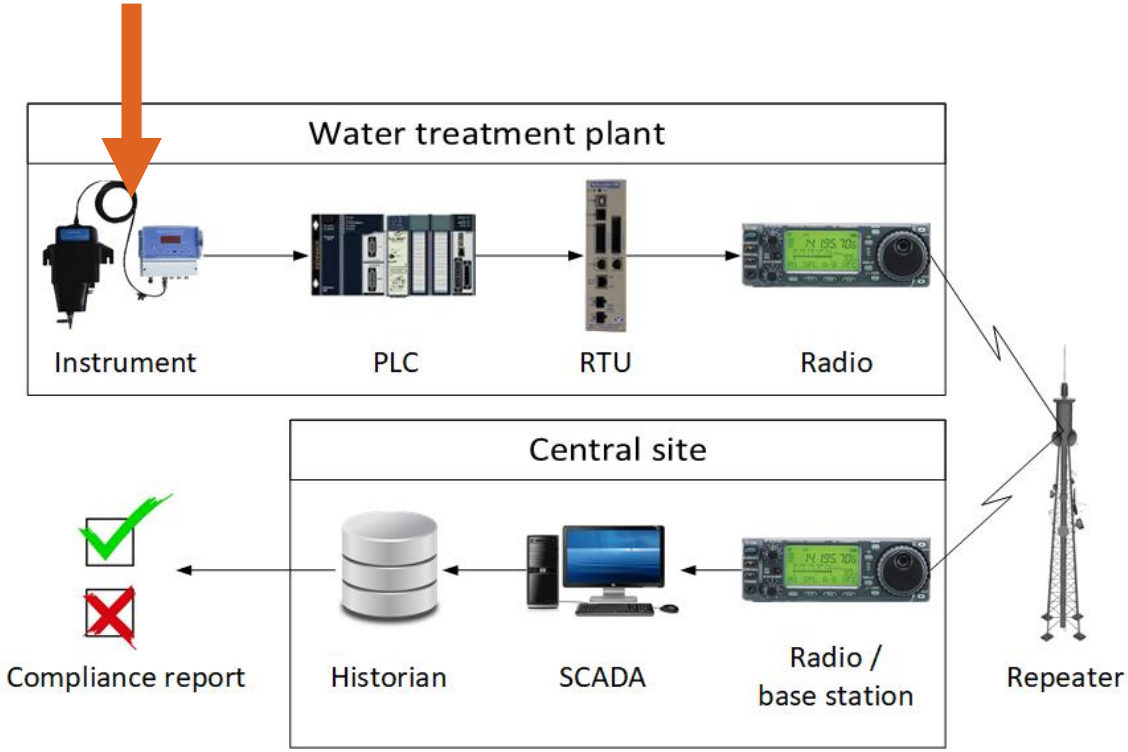
?

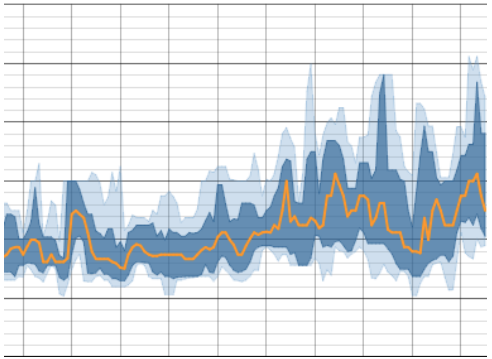
Compliance report

Compliance data path

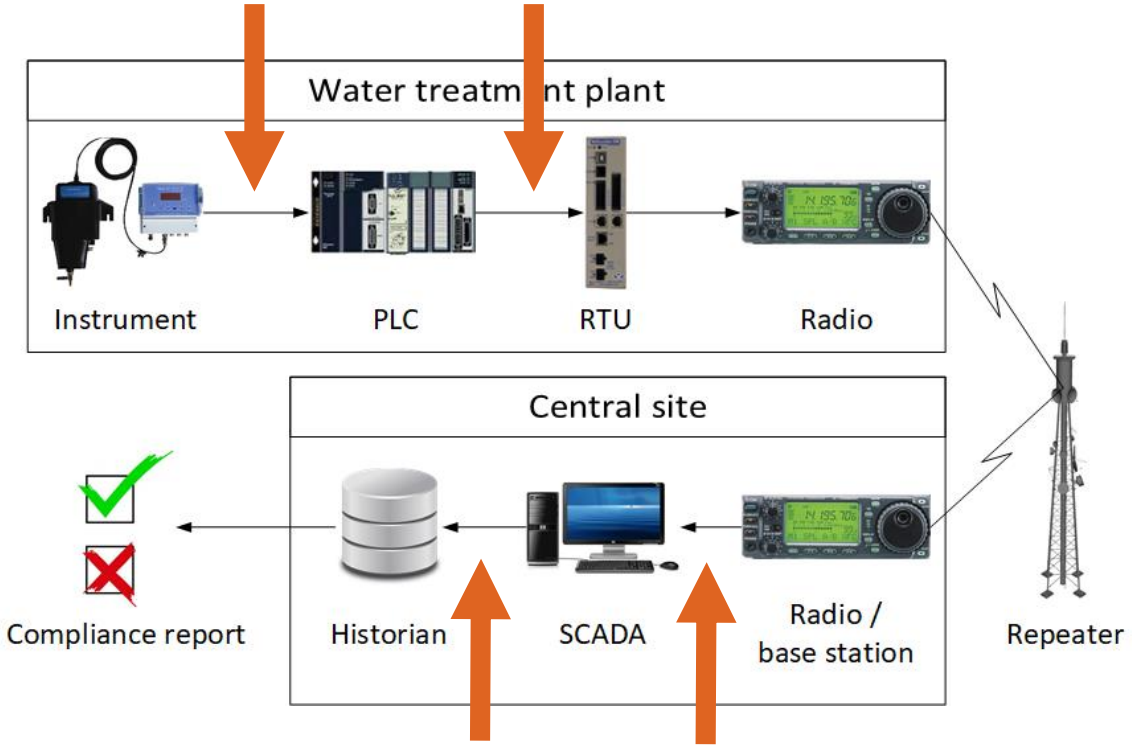


Measurement drift





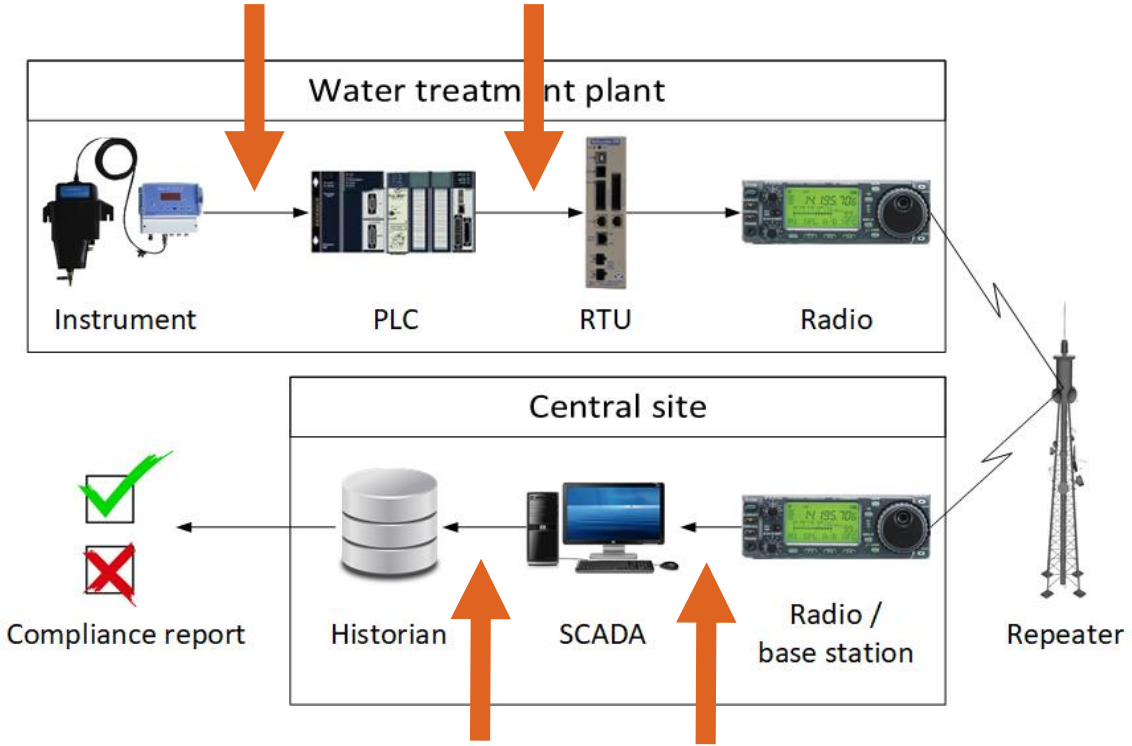
Scaling mismatch



Instrument	
Reading	1.5
0% Scale (4mA)	0
100% Scale (20mA)	5
Measurement unit	NTU

PLC	
Reading	0.9
0% Scale (4mA)	0
100% Scale (20mA)	3
Measurement unit	NTU

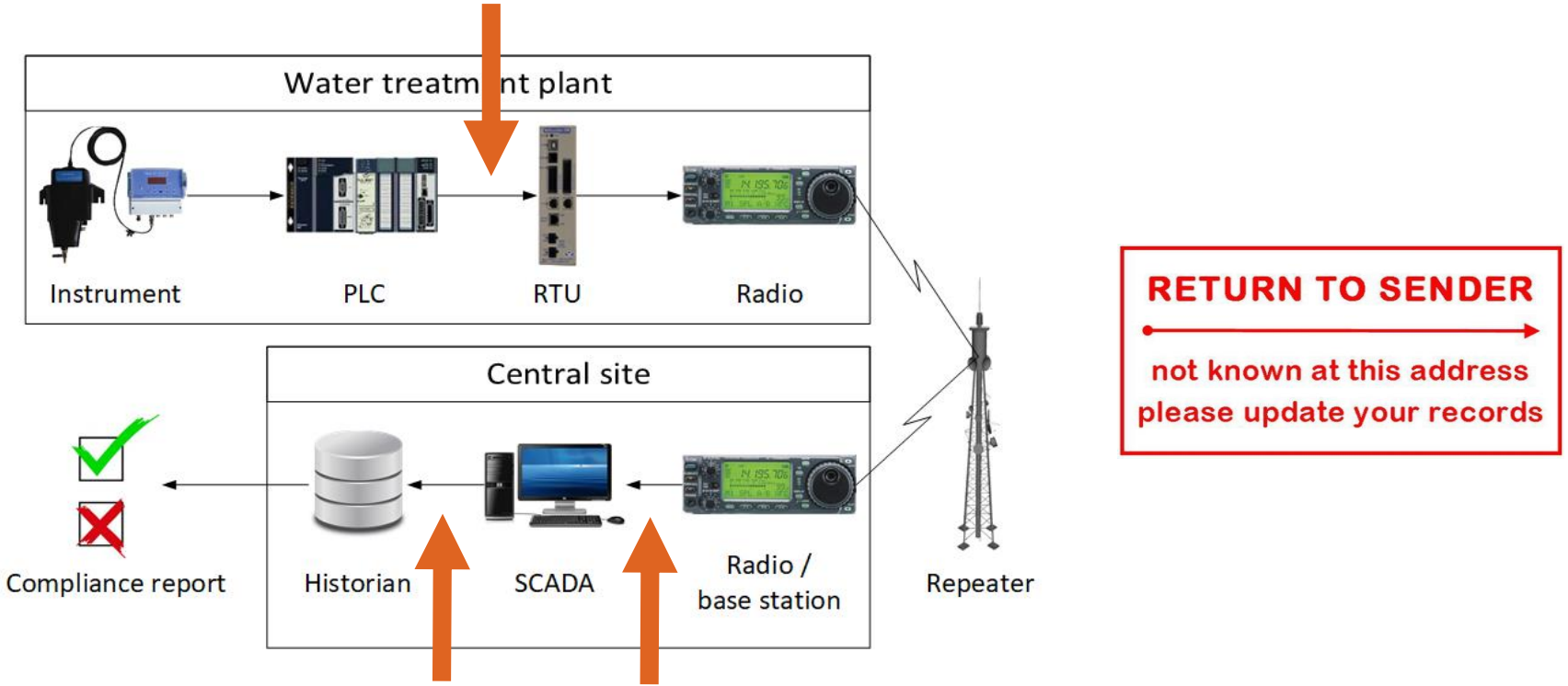
Unit mismatch



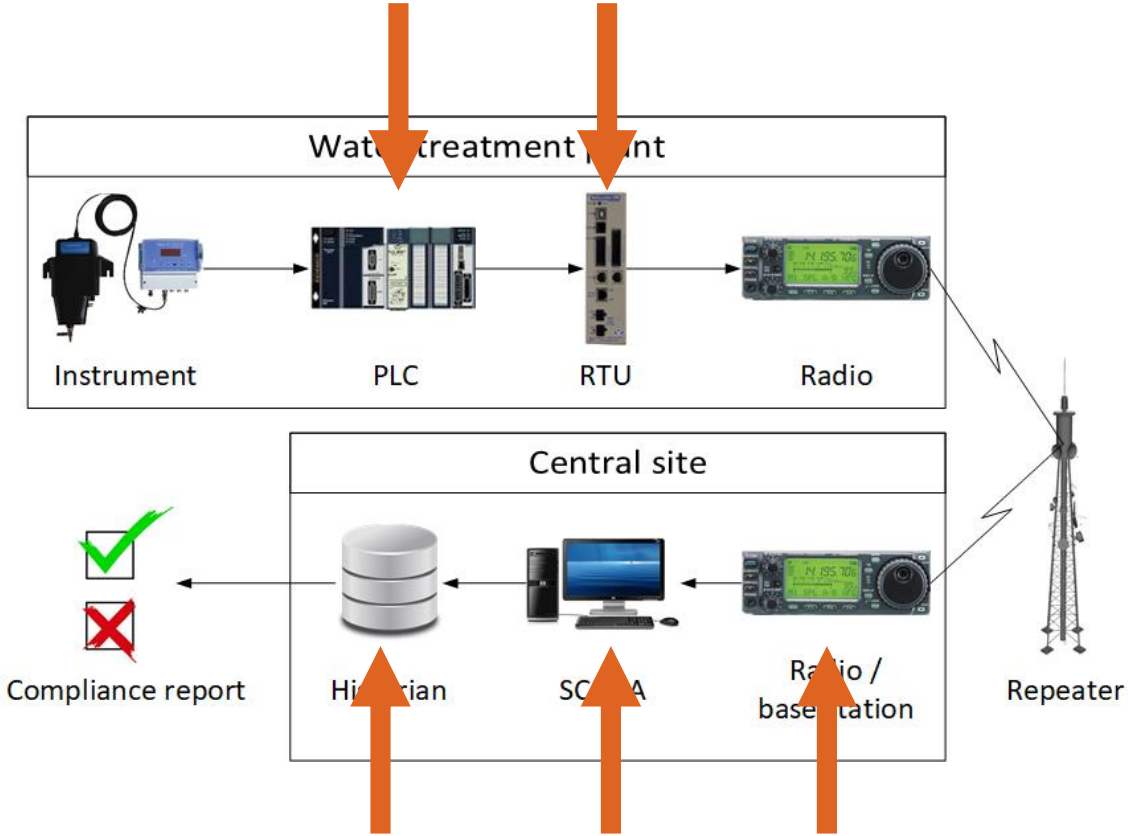
Instrument	
Reading	2.5
0% Scale (4mA)	0
100% Scale (20mA)	5
Measurement unit	L/s

PLC	
Reading	2.5
0% Scale (4mA)	0
100% Scale (20mA)	5
Measurement unit	m3/hr

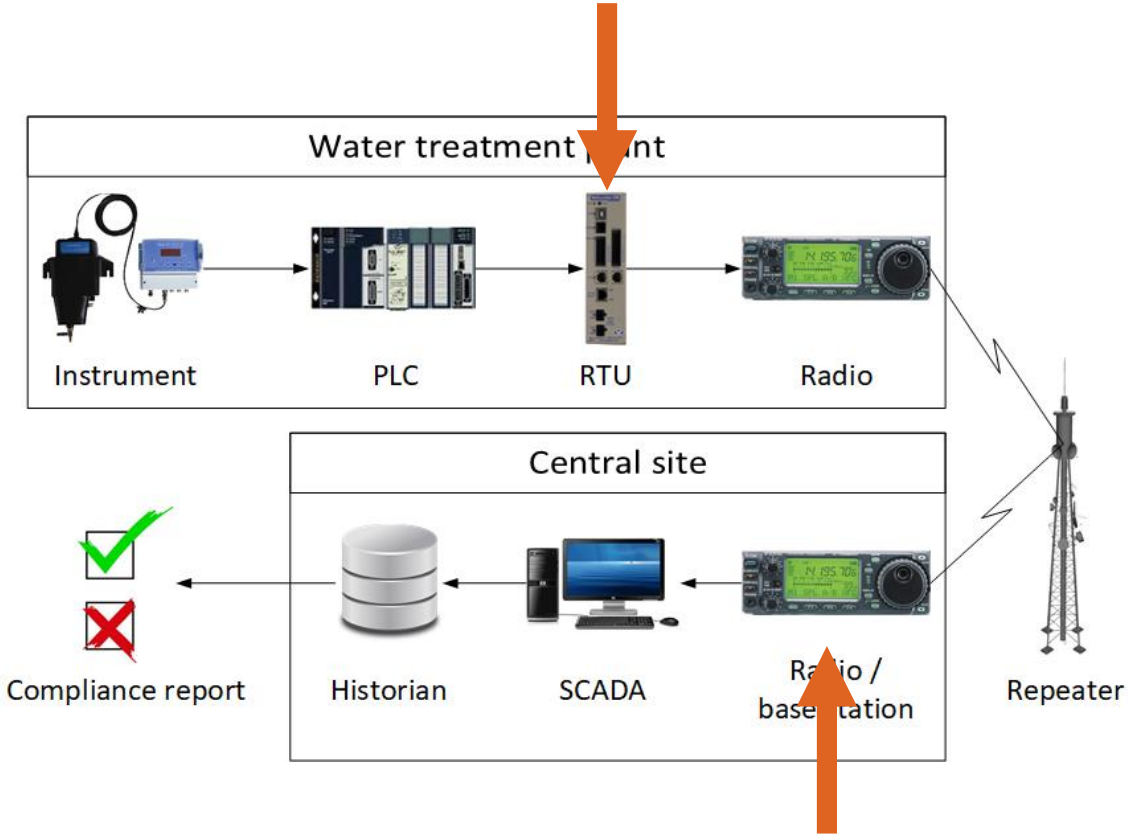
Data location misreference



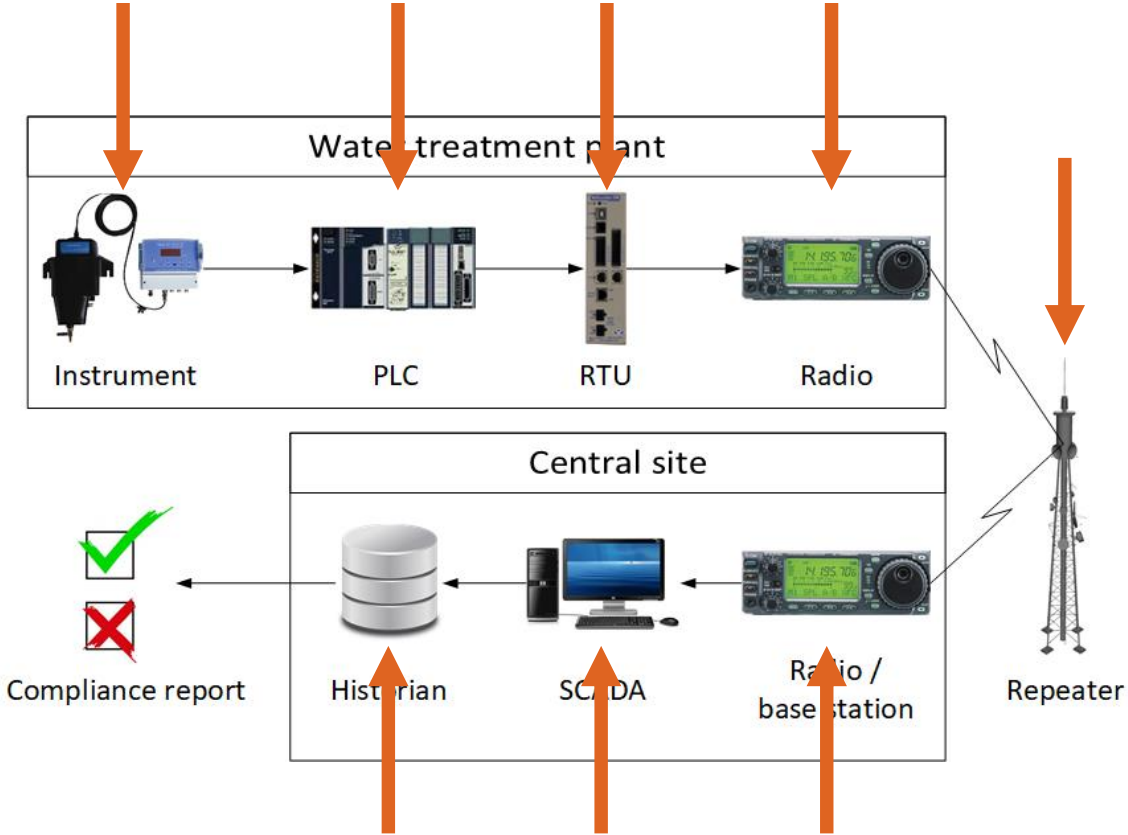
Data type mismatch



Timestamping



Device lockup



How to minimise risk?

Design

Secure

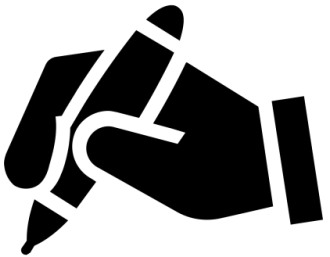
Control

Design

Equipment

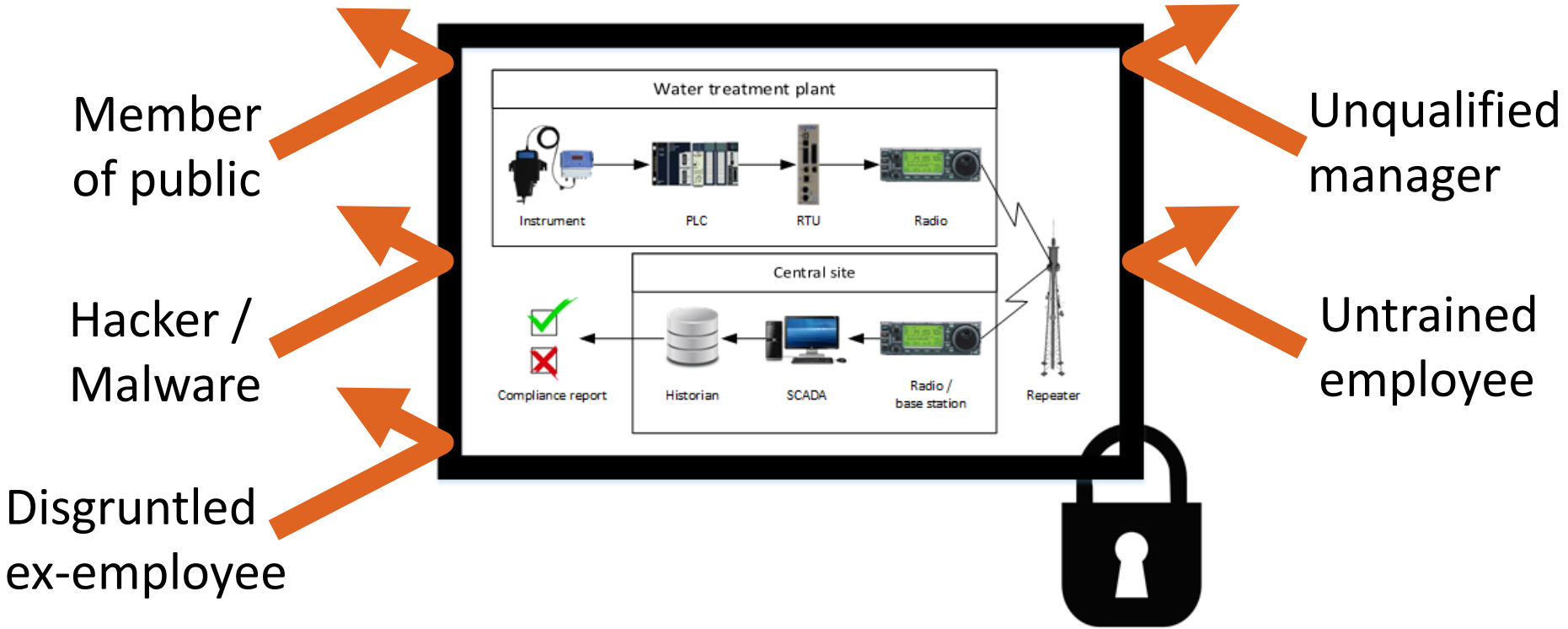
Each item of information has its own row

Instrument		PLC				RTU		RTU base station		SCADA		Historian	
Internal		Input		Output		Internal		Internal		Internal		Internal	
Last calibration	1/01/2020												
Next calibration	1/04/2020												
0% Scale	0	0% Scale	0							0% Scale	0		
100% Scale	5	100% Scale	5							100% Scale	5		
Unit	NTU	Unit	NTU	Unit	NTU	Unit	NTU	Unit	NTU	Unit	NTU	Unit	NTU
Analogue scale	4-20mA	Analogue scale	4-20mA										
		Data tag	NTU_in	Data tag	NTU_out	Data tag	NTU_in	Data tag	SiteX.NTU	Data tag	SiteX.NTU	Data tag	SiteX.NTU
		Data type	REAL	Data type	REAL	Data type	REAL	Data type	FLOAT(32)	Data type	FLOAT(32)	Data type	FLOAT(32)
		Words used	2	Words used	2	Words used	2						
		First register	30001	First register	40001	First register	40001						



Compliance data information associated with the equipment

Secure


Member of public
Hacker / Malware
Disgruntled ex-employee
Unqualified manager
Untrained employee
Water treatment plant
Instrument
PLC
RTU
Radio
Central site
Compliance report
Historian
SCADA
Radio / base station
Repeater

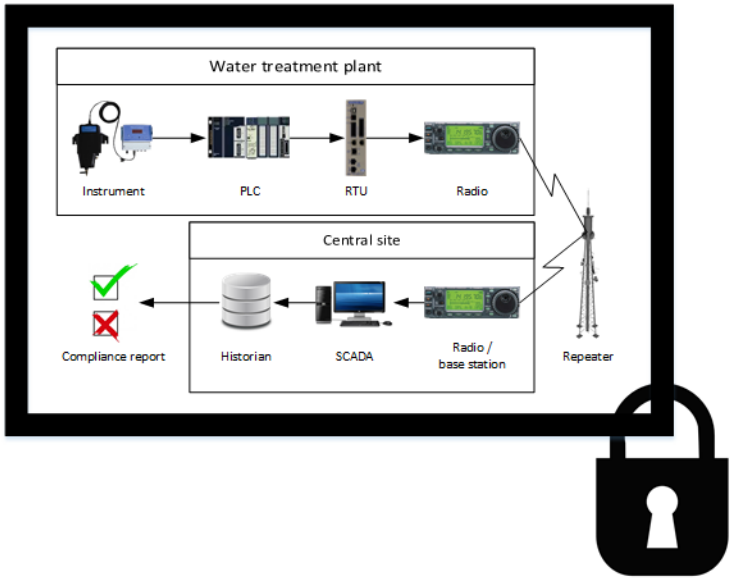
Control

Maintenance

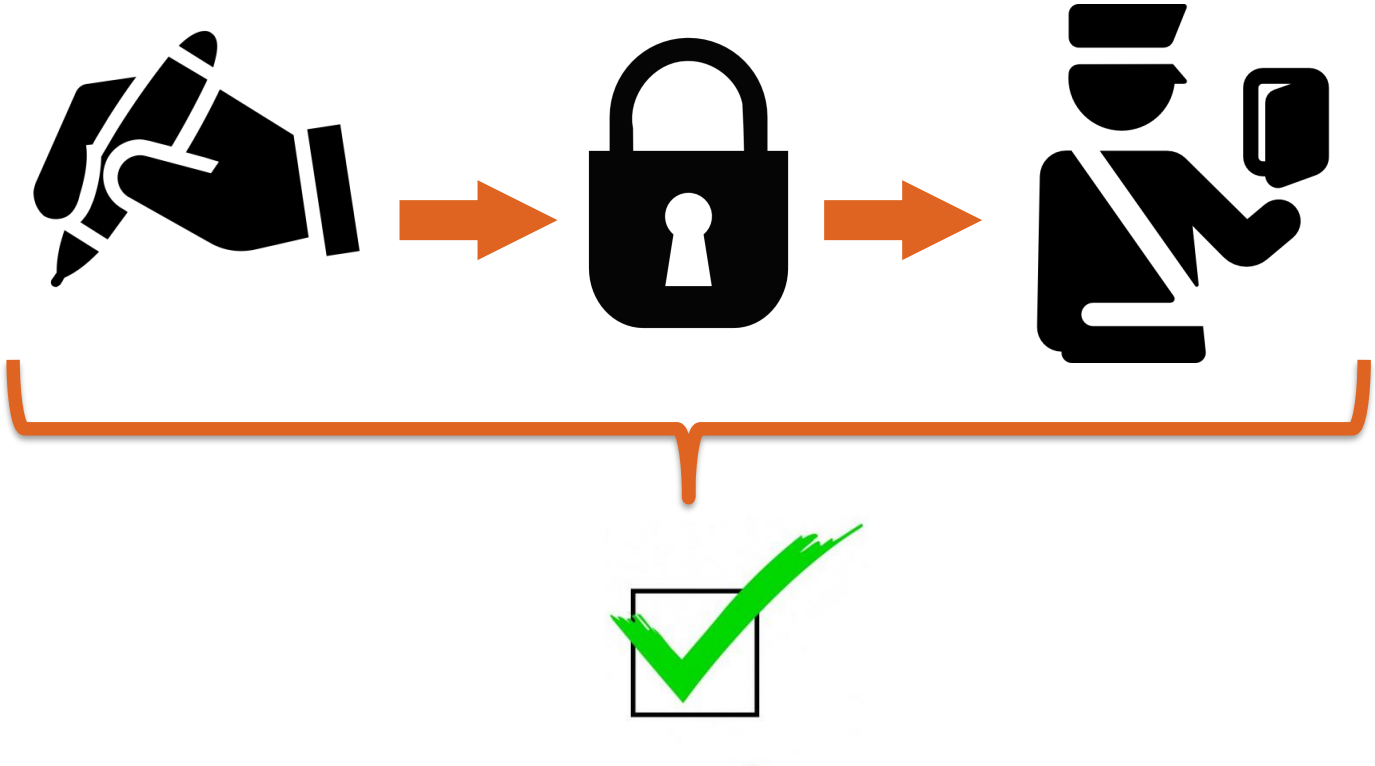
Projects

Software updates

Change management



Conclusion



Questions?