ADVANCED PIPE INSPECTION

Pipe Assessment Report

CCTV/Acoustic Commissioncam™ leakage and inspection report
produced on behalf of:
SAMPLE

CCTV & Acoustic Inspection Project Scope

A pressurised CCTV and acoustic survey was undertaken on a new installation potable water pipeline to locate a possible leak or leaks within a pipeline section. The survey was completed to also confirm that the pipe was clean and free of debris as part of the commissioning procedure.

Pressurised Pipe Internal CCTV & Acoustic Report

Equipment Testing Details:

Calibration and Testing undertaken by:	S Lewthwaite

Equipment Information:

System Used:	Pipepod Hydrostatic & Commissioncam	**Visual Check:**	25-1-21
ID Number:	018-1100	**Sanitised:**	25-1-21
Purpose Used:	Acoustic Survey Potable Water	**Pat Test Date:**	2-1-21
Pressure Tested:	25-1-21	**Pat Test Due:**	2-4-21

Chlorination Details:

Chlorination Mixture:	N/A
Chlorine/Water:	N/A
Technician Name:	N/A

Pressurised Pipe Internal CCTV & Acoustic Report

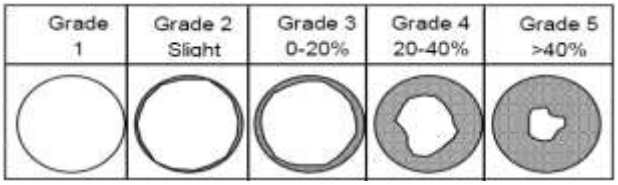
Location:	SAMPLE	**Inspection Date:**	
Client:	SAMPLE	27-1-21	
Client contact:	SAMPLE	**Hydrant Reference ID**	
API Team Leader:	Jamie Hadley	API-SAMPLE	

Pipe Details:

Pipe Material:	DI	**Pipe Coating:**	Yes paint
ID (Nominal):	650 mm	**Internal Lining:**	Cement
Age:	New Installation	**Reason for Survey:**	Leak Detection
Pressure:	11 Bar	**Distance of Survey:**	590.00 Metres

Condition Grading: *Pipe grading a visual representation only

Hydraulic Grade:	1-2
Asset Condition:	New installation
Risk of Fracture:	High



Supporting Photo information:

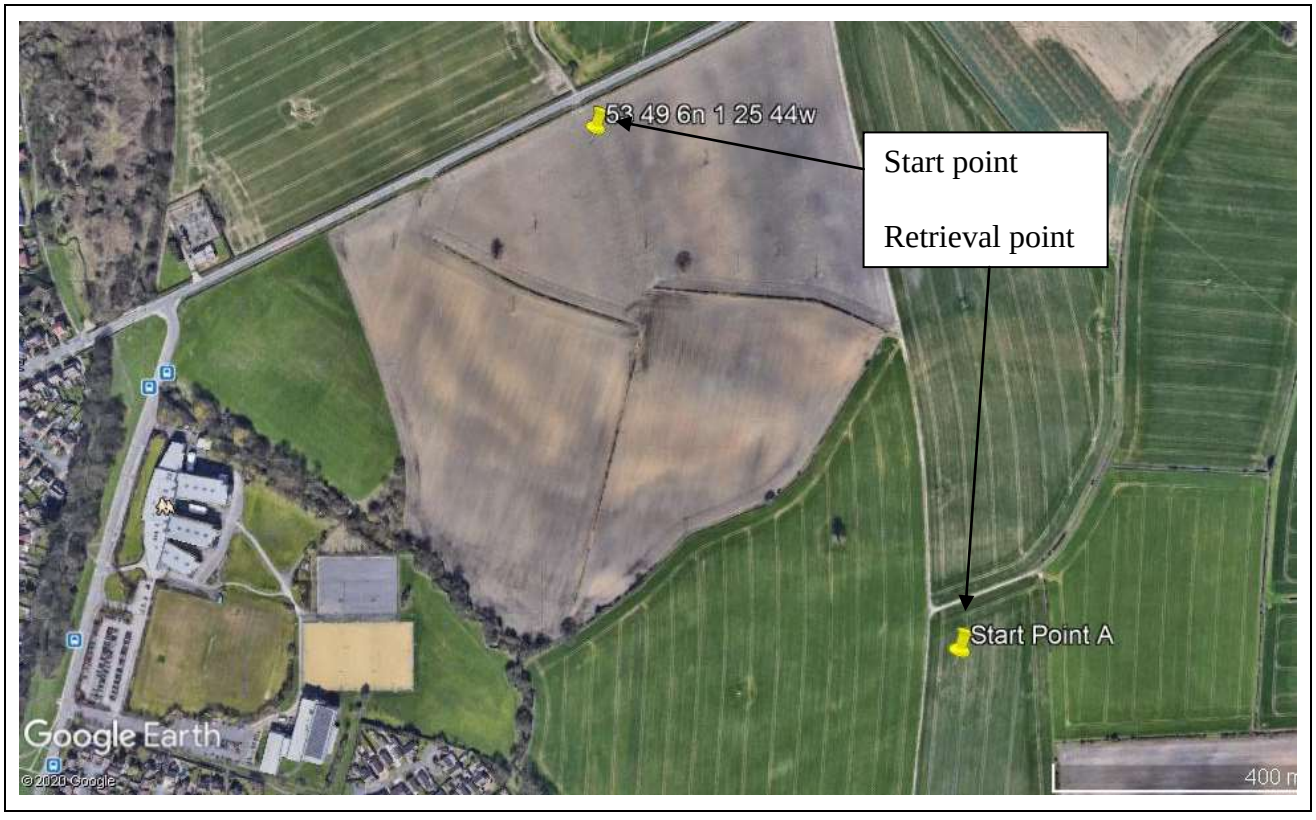

Site Location B: System entry point


System exit point top of hill:

Pressurised Pipe Internal CCTV & Acoustic Report

Pressure reading (Actual on site):

Location Map of Survey:



Pressurised Pipe Internal CCTV & Acoustic Report

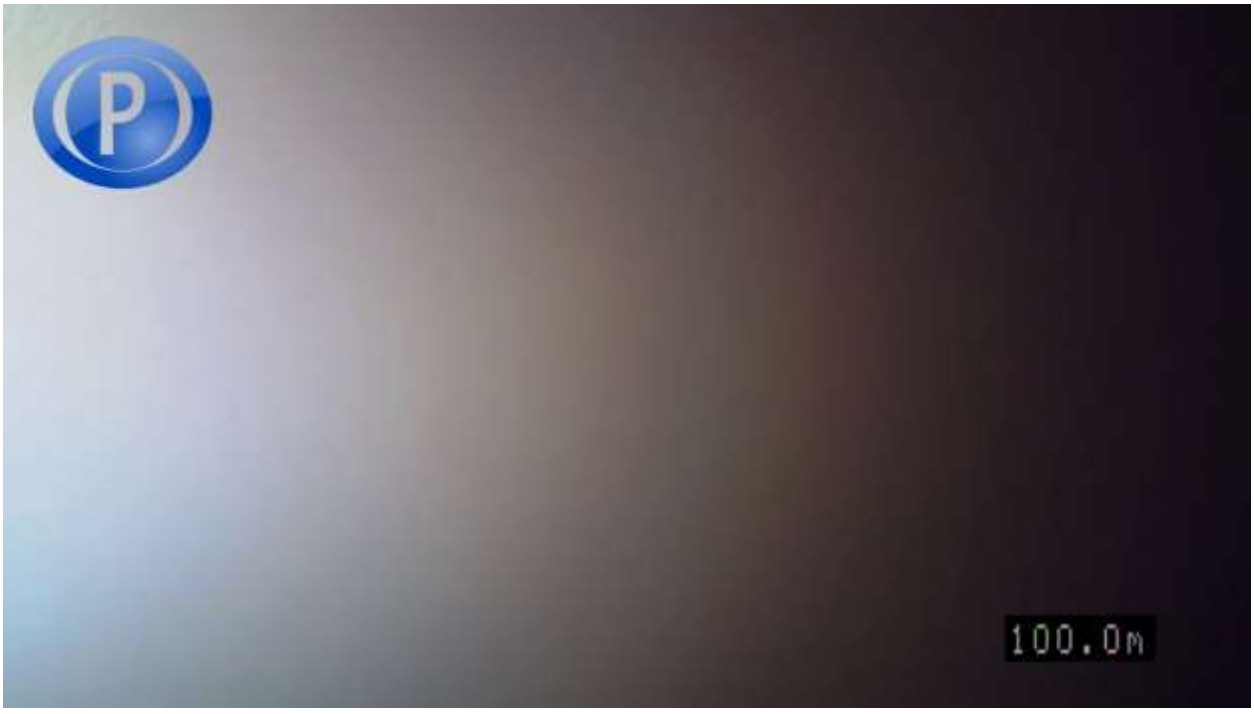
Pressurised CCTV Survey Internal Video Stills and Notes:
Direction 1 towards pit A

Start of survey

Debris identified

Pressurised Pipe Internal CCTV & Acoustic Report

Poor water clarity



Poor water clarity

Pressurised Pipe Internal CCTV & Acoustic Report

Poor water clarity

Good water clarity

Air pocket identified

Air pocket identified

Pressurised Pipe Internal CCTV & Acoustic Report

Main image

Main image

Wide joint image

Joint image

Pressurised Pipe Internal CCTV & Acoustic Report

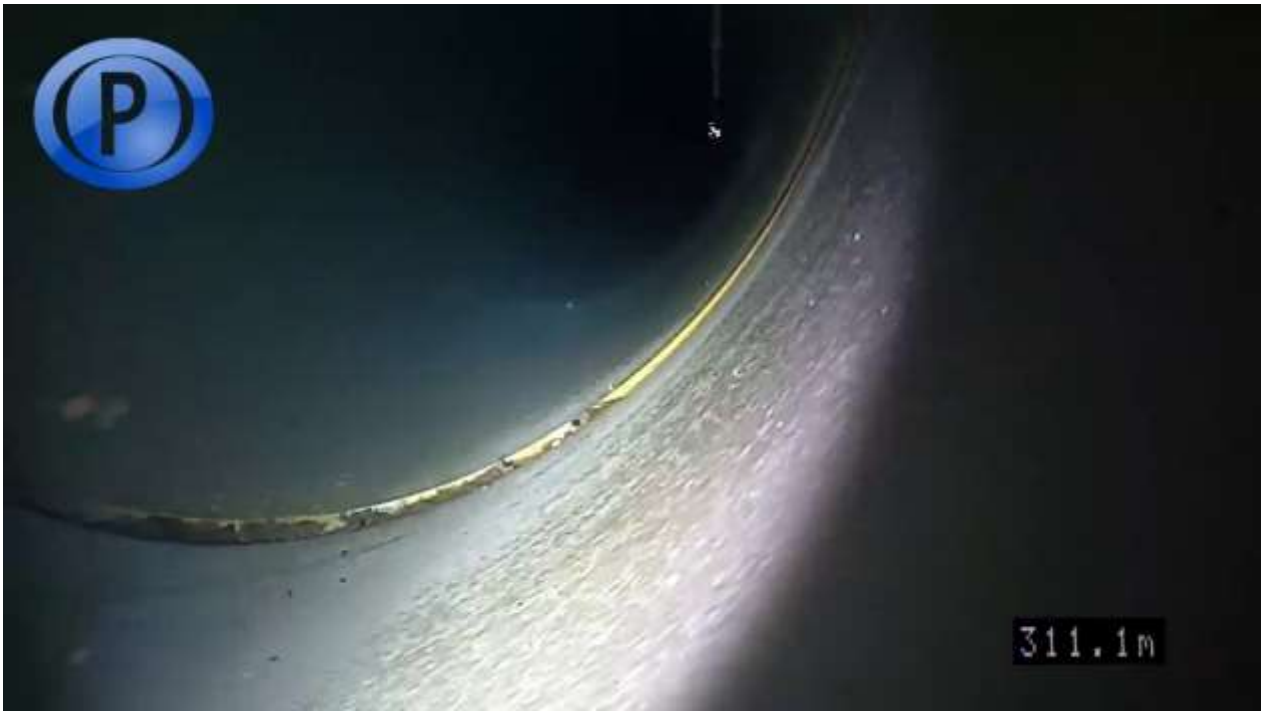
Joint image

Joint image possible gasket and wide joint (this point recorded an acoustic POI)

Pressurised Pipe Internal CCTV & Acoustic Report

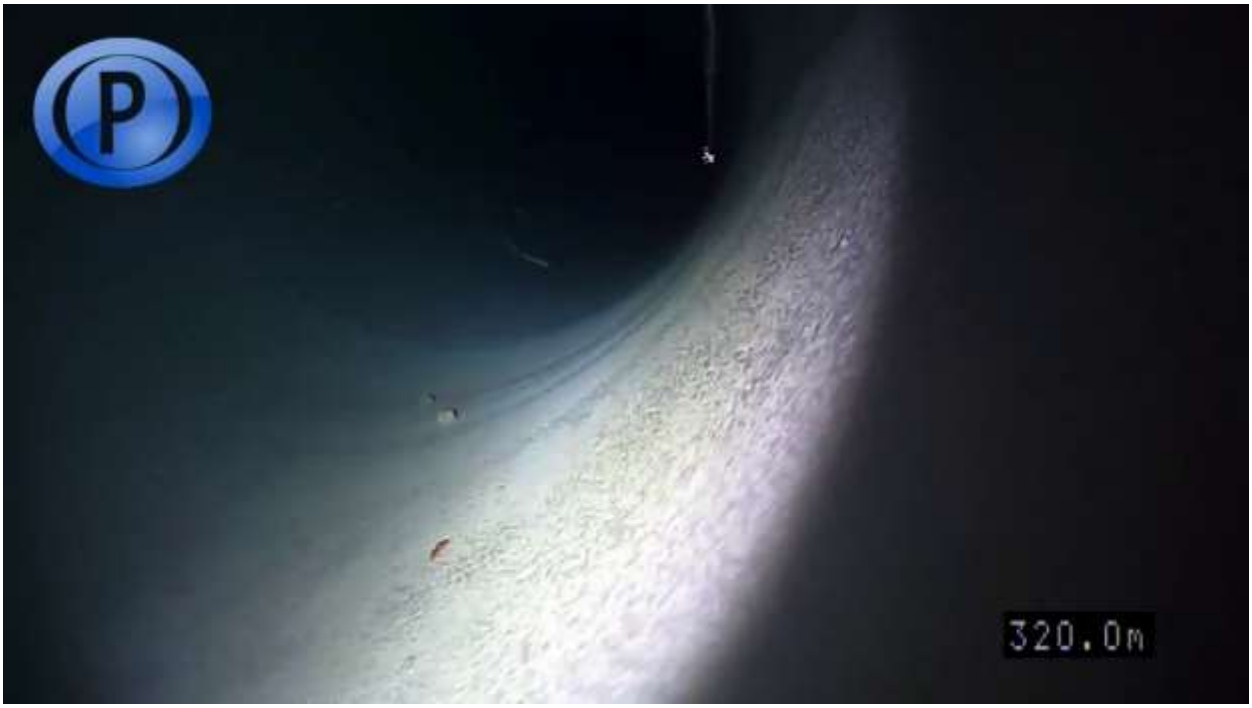
Some acoustic interest identified and non-uniform joint

Wide Joint image



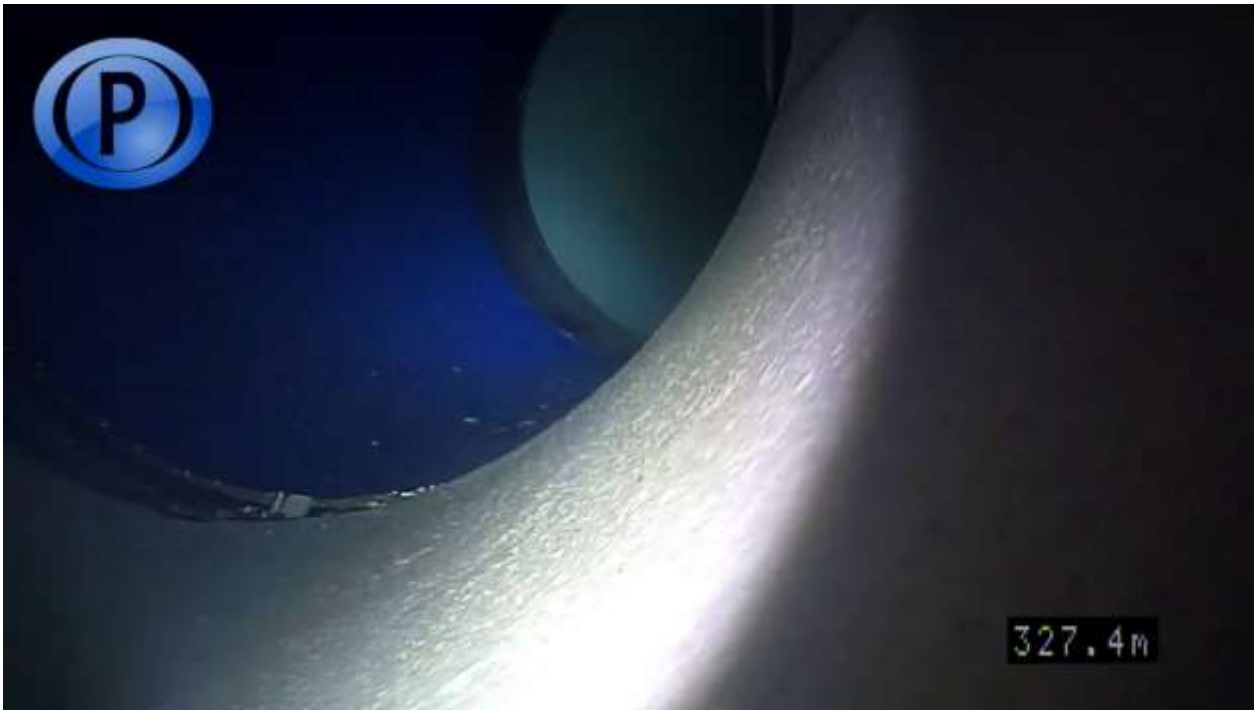
Joint image

Joint image

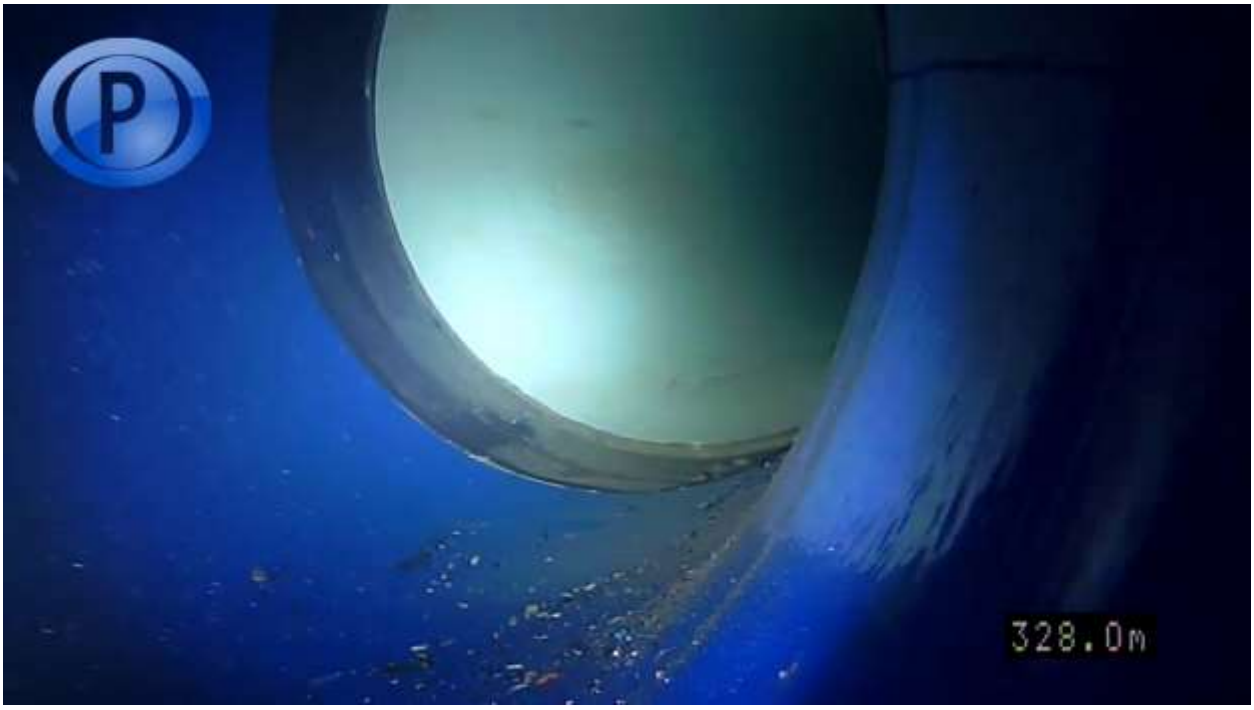


Main image

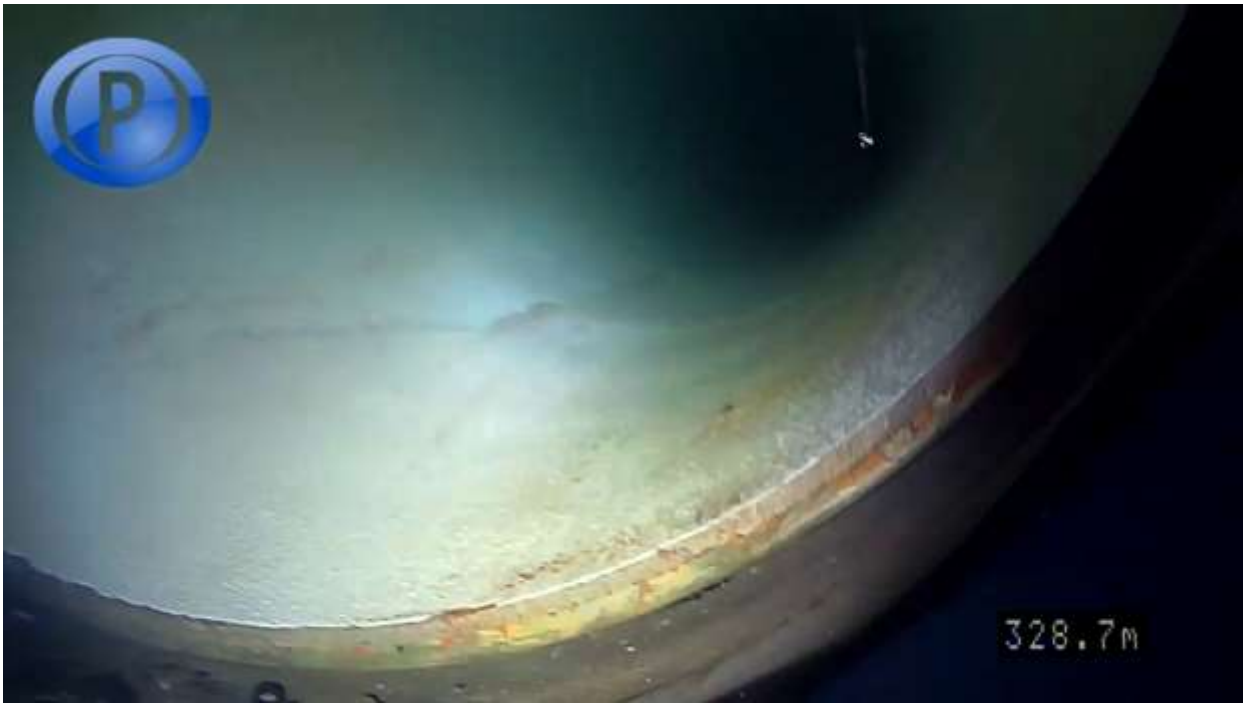
Debris on joint image



Bend image

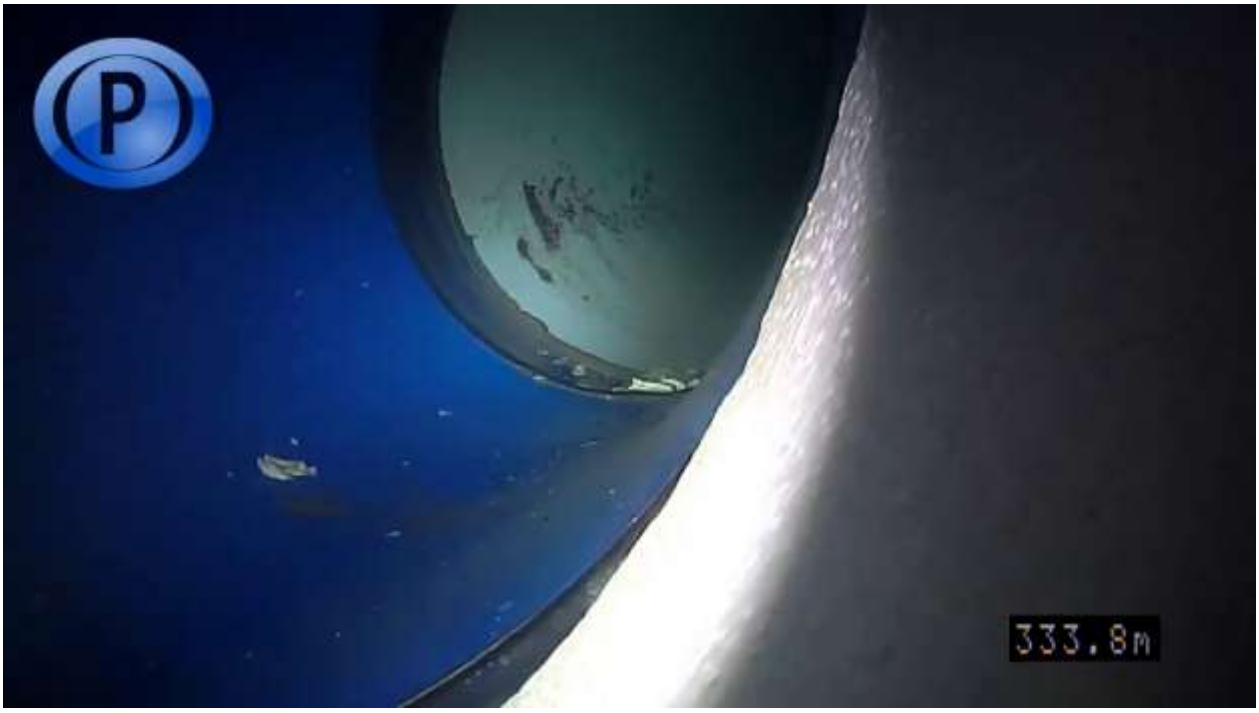


Bend image with debris identified



Joint image

Possible failure of cement lining



Bend image

Main image

Joint image

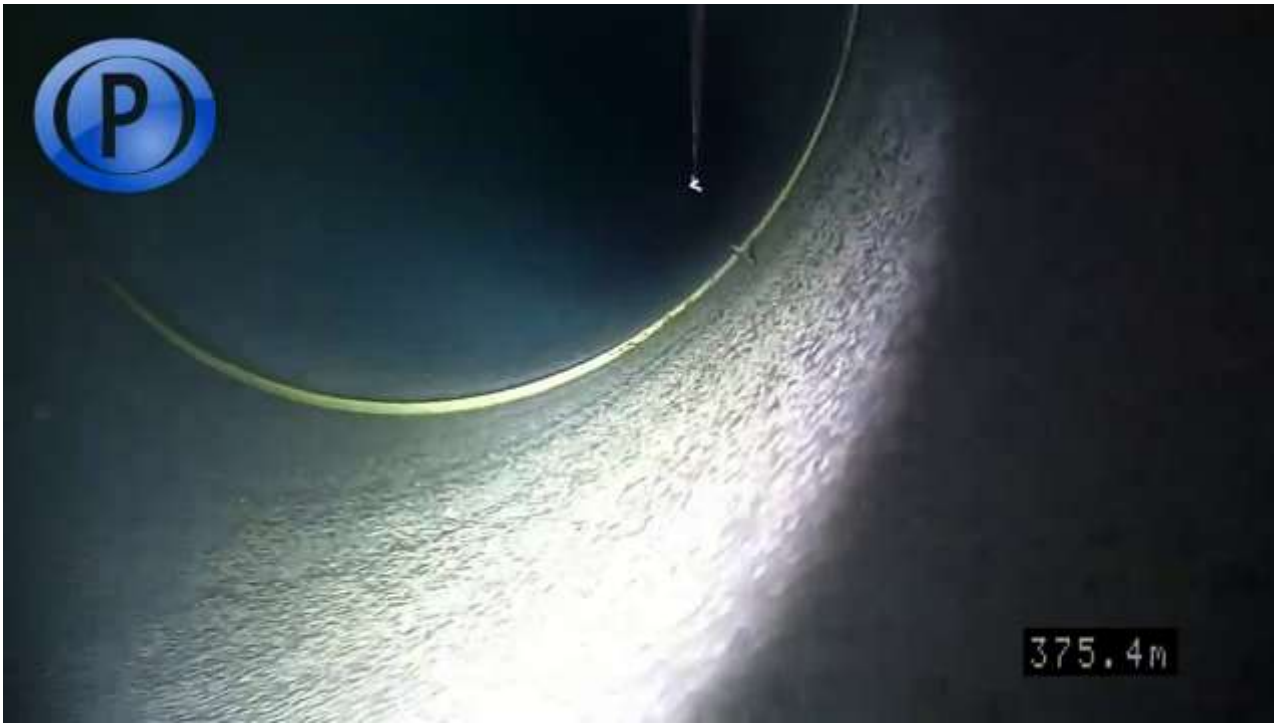
Joint image

Joint image

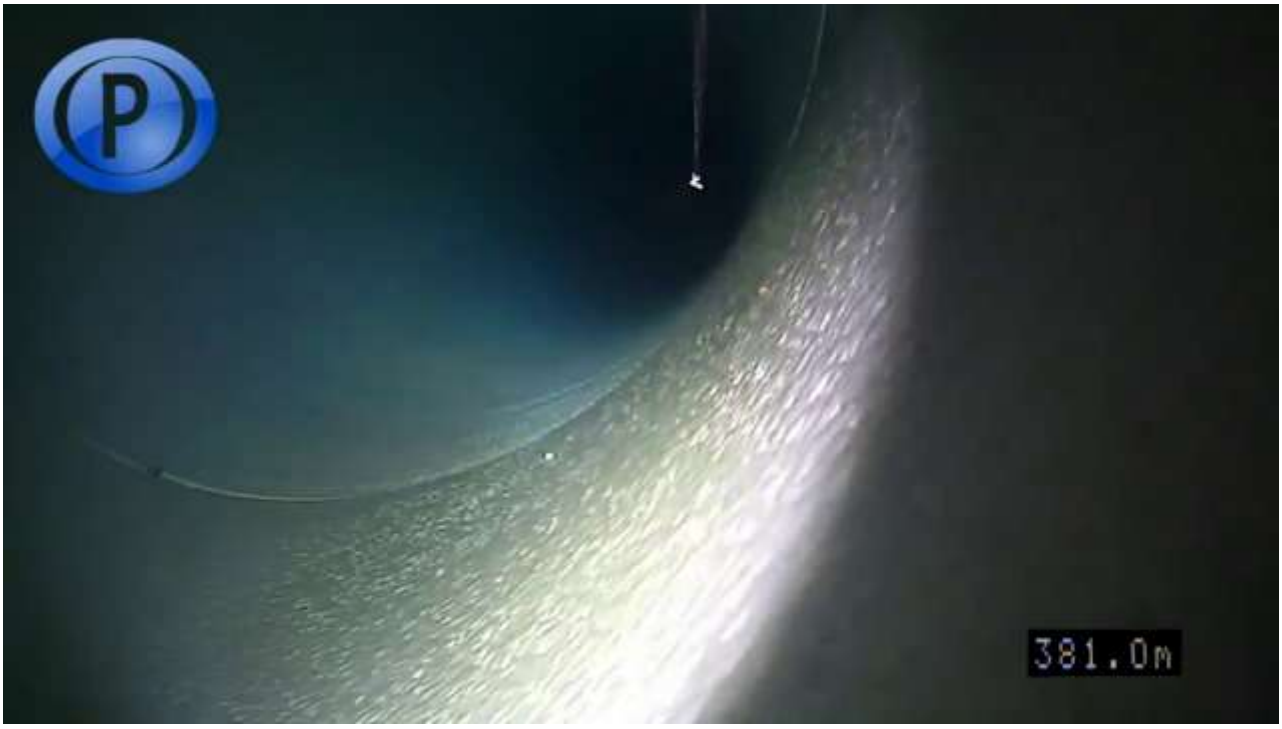
Joint image with debris identified

Joint image

Joint image with debris identified



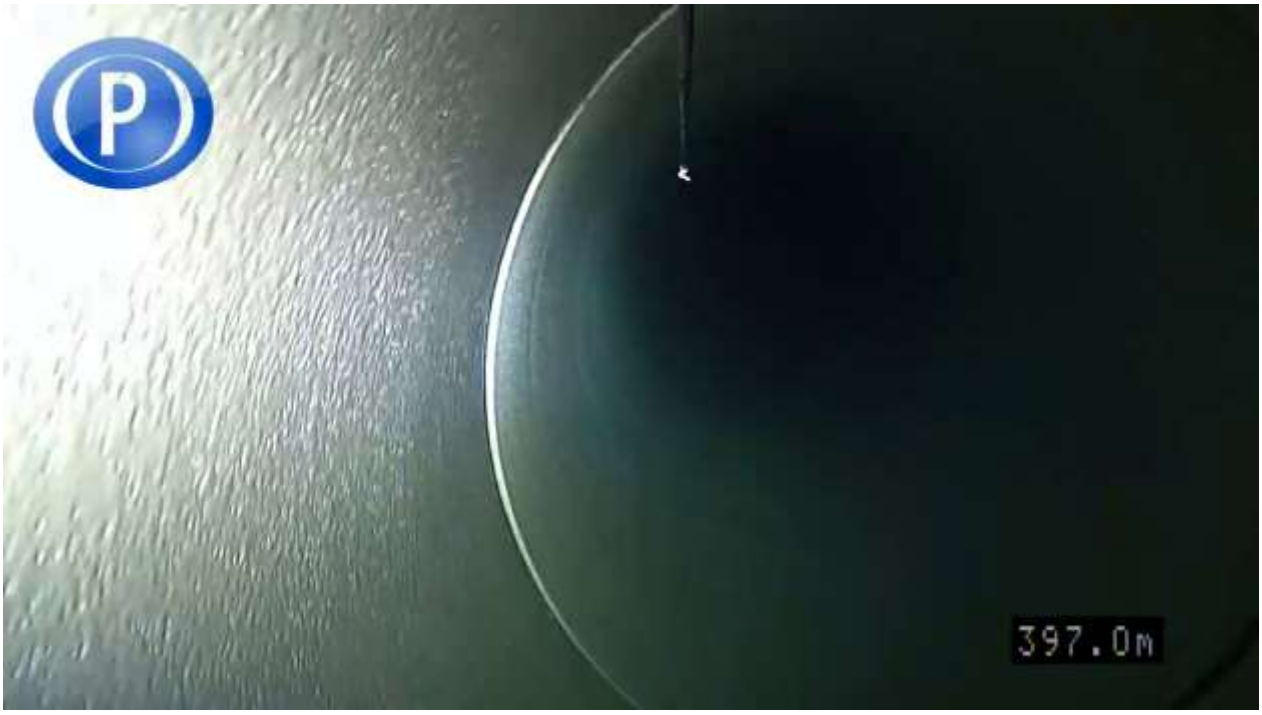
Joint image



Joint image

Joint image

Main image



Joint image

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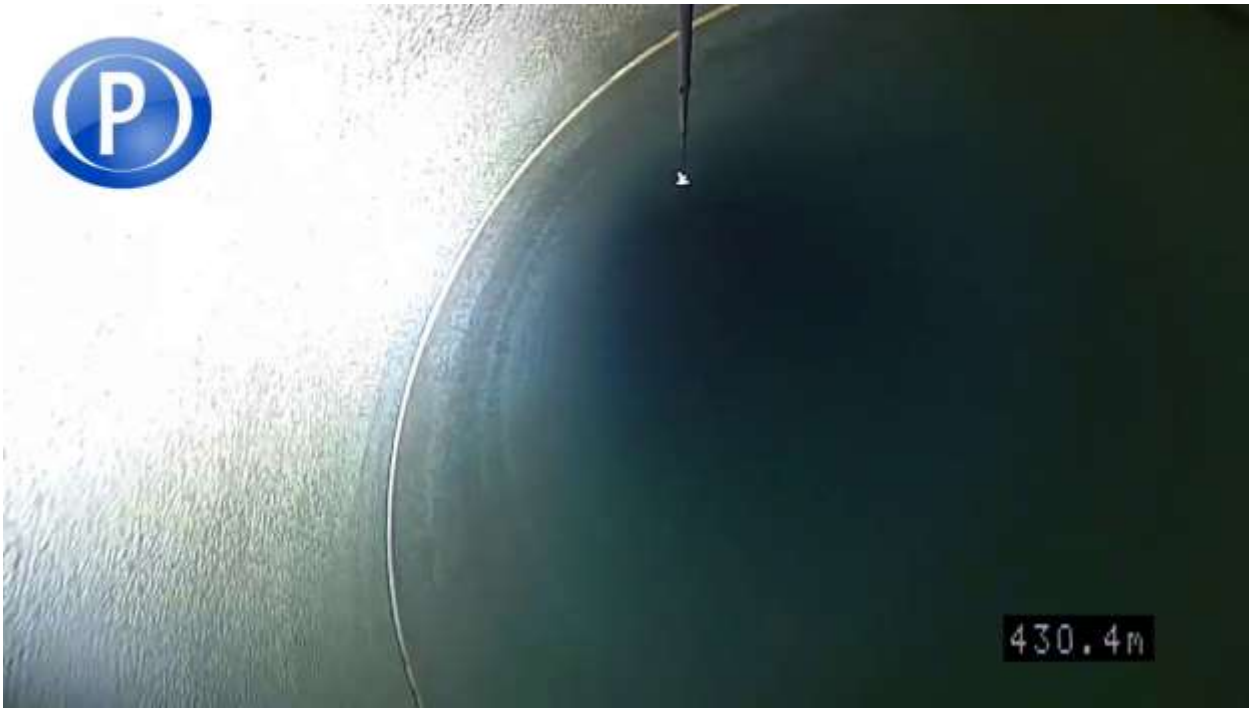
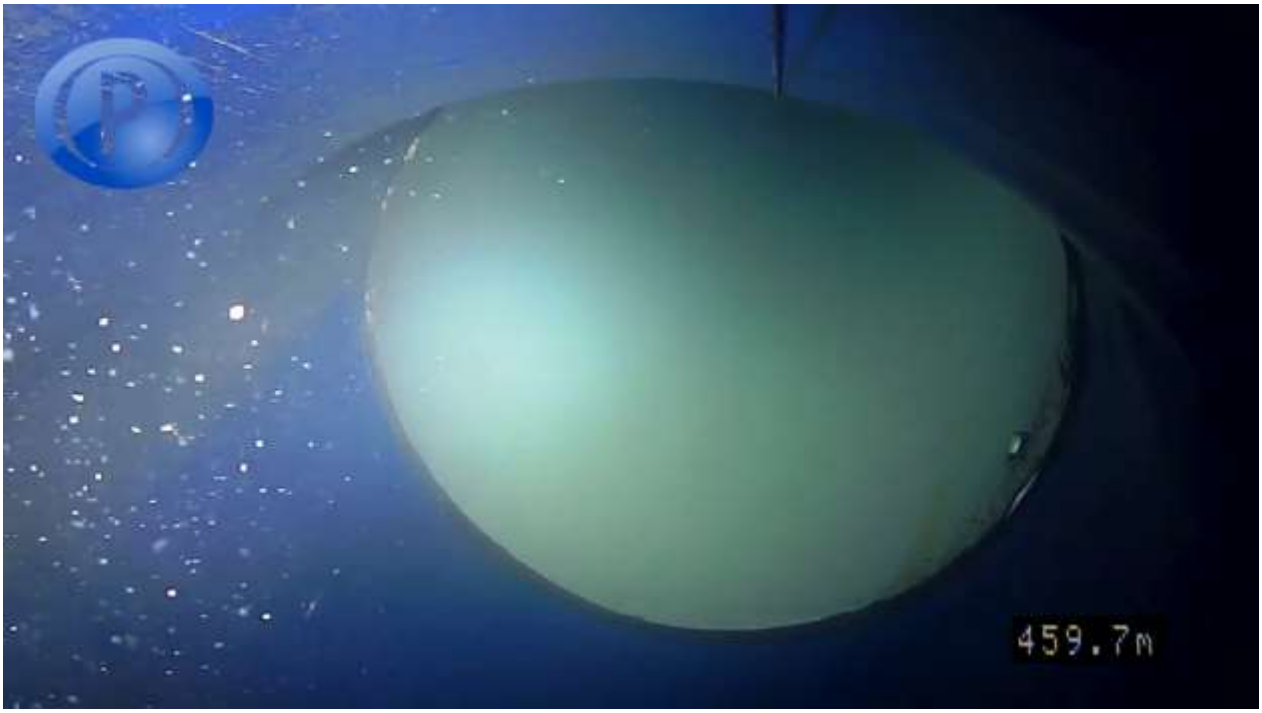


Joint image

Joint image

Joint image

Bend image



Bend image

Joint image with possible gasket identified

Joint image

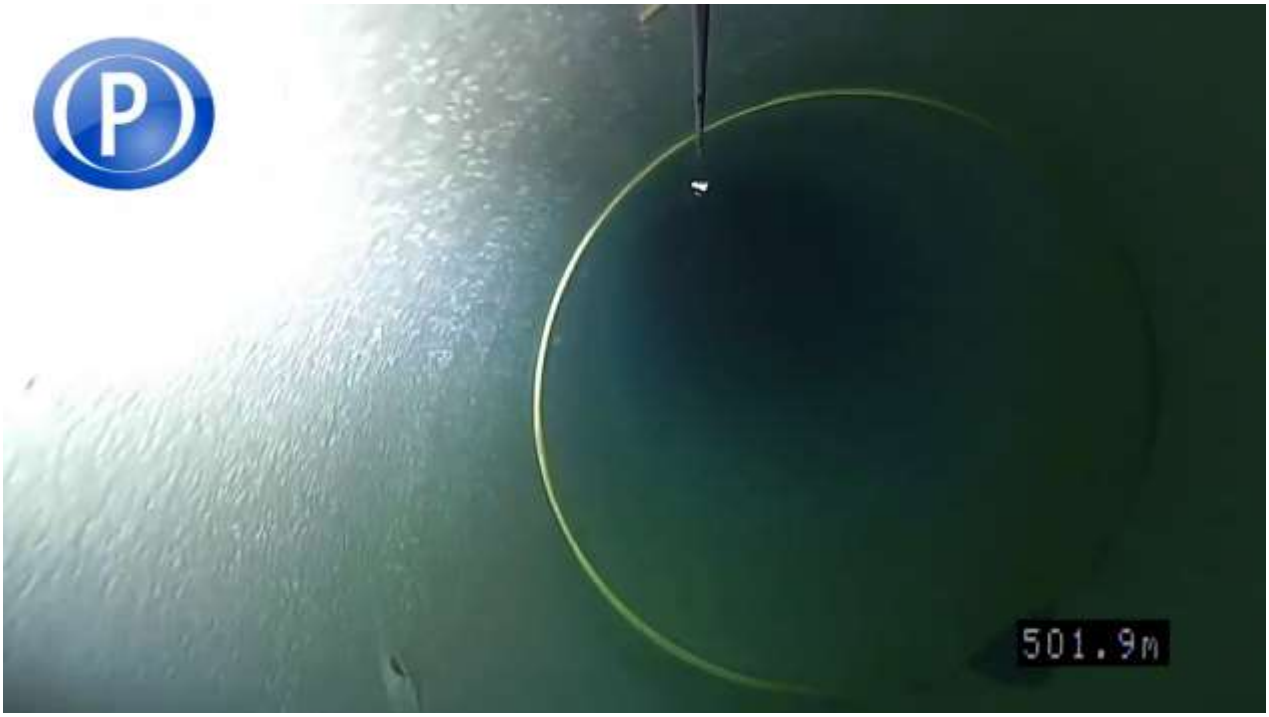
Joint image

Joint image

Joint image

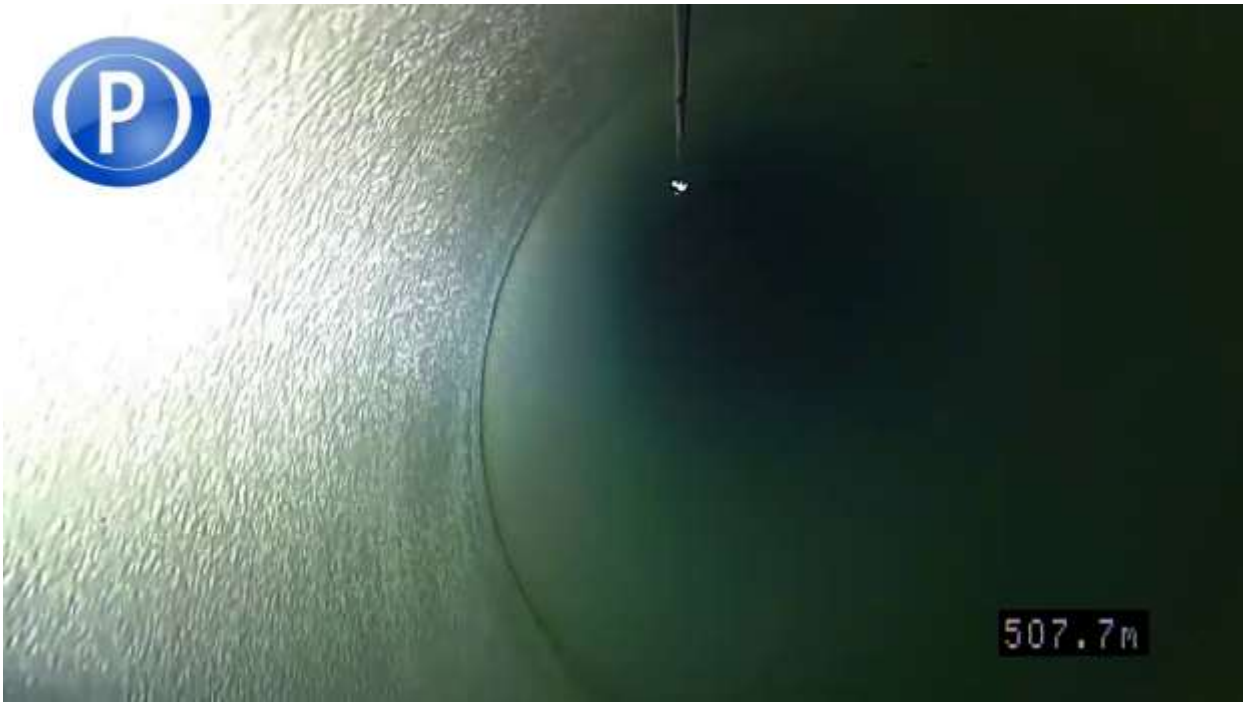
Joint image

Main image



Joint image with failure of lining identified

Main image with blistering of lining identified



Joint image

Joint image

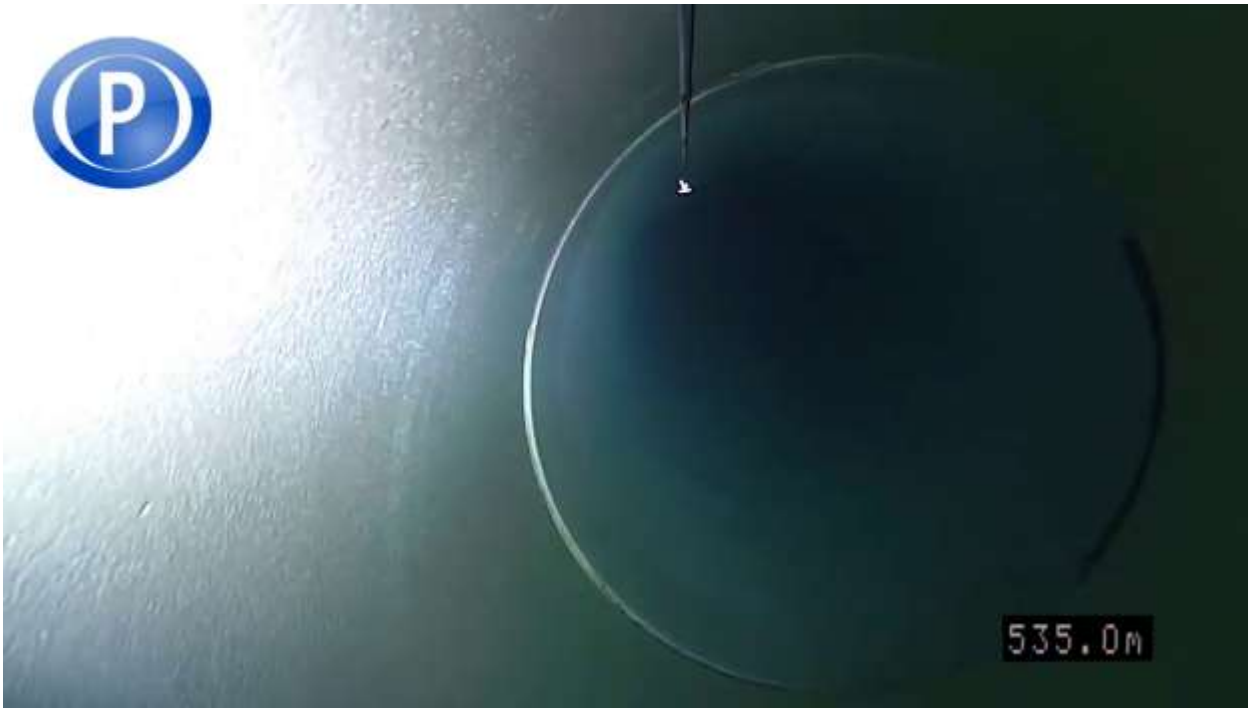
Joint image

Main image

Joint image

Main image

Joint image possible gasket identified



Joint image with possible gasket identified

Joint image

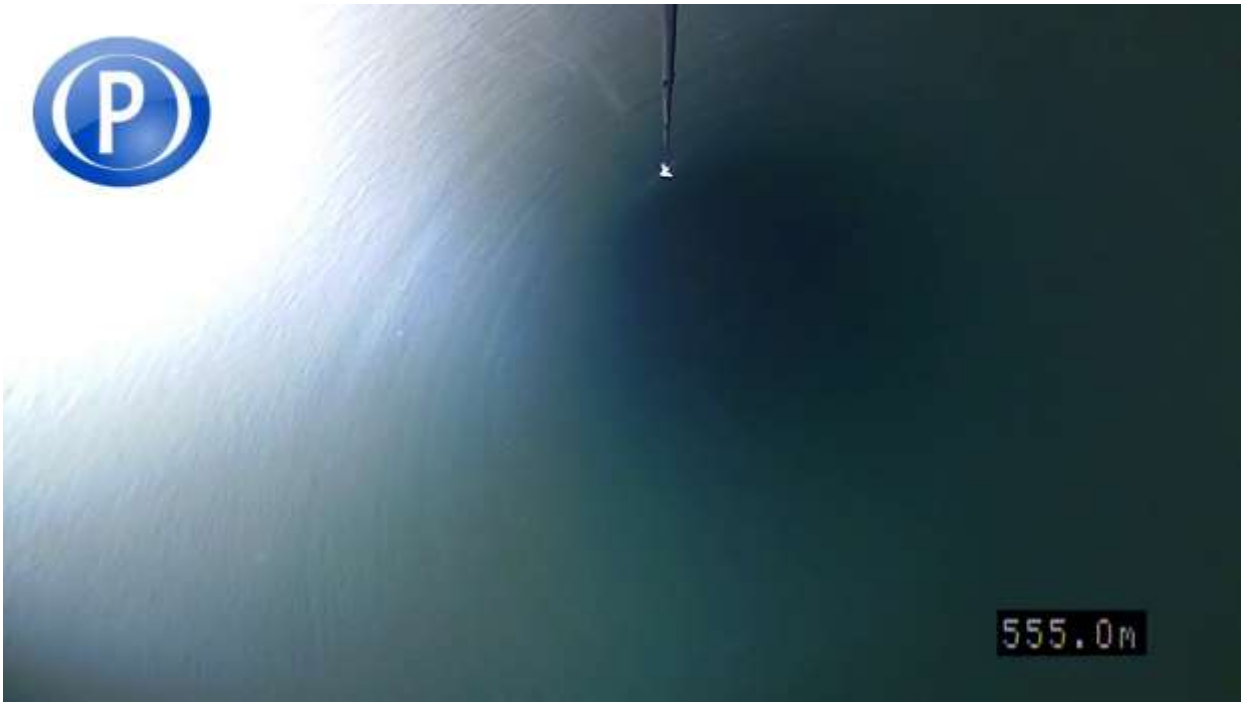
Main image

Main image

Joint image

Main image

Joint image with possible gasket identified



Main image

Joint image with possible gasket identified

Main image

Joint image

Joint image

Main image

Joint image

Joint image

Joint image

End of survey

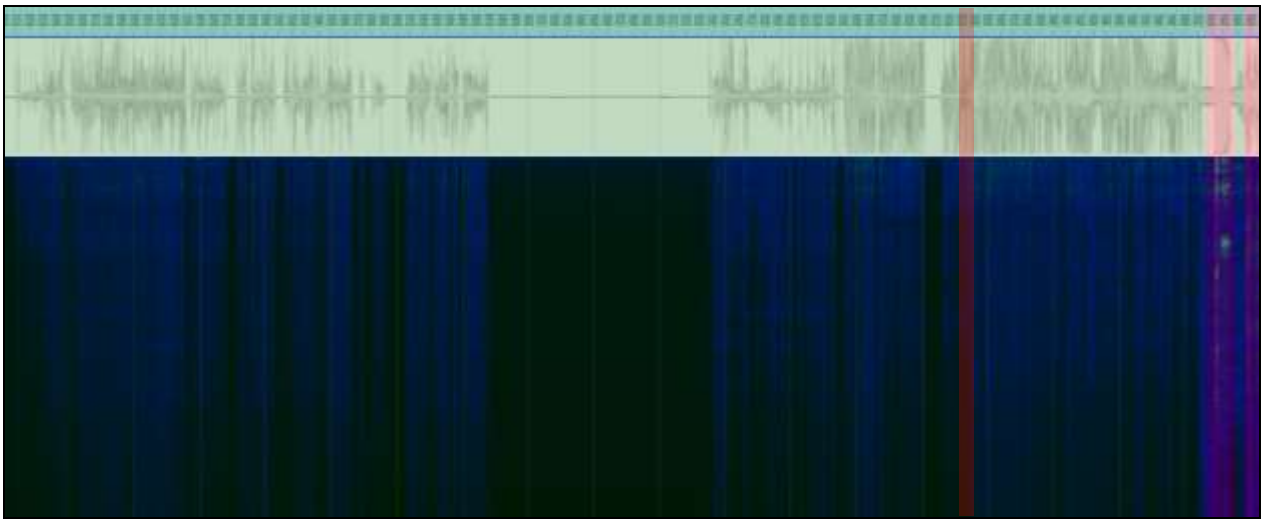
Wide joint at exit point identified

Pressurised Pipe Internal CCTV & Acoustic Report

Inspection comments:

- A pressurised CCTV & acoustic survey was undertaken on a new installation potable water pipeline with a detailed leakage sweep
- Entry was via a DN100 & DN80 valve pipe configuration
- No chlorination required during survey
- Chapter 8 signage and barriers was provided by client
- The Commissioncam™ entry point was located in an excavation area in field
- The retrieval point was located in an excavation area in field
- Client pre-installed the pipeline cable using a tethered swab approach

Additional Information – Acoustic Scanning Details (leak analysis)



SG1 **SG2** **SG3**

Full spectrograph

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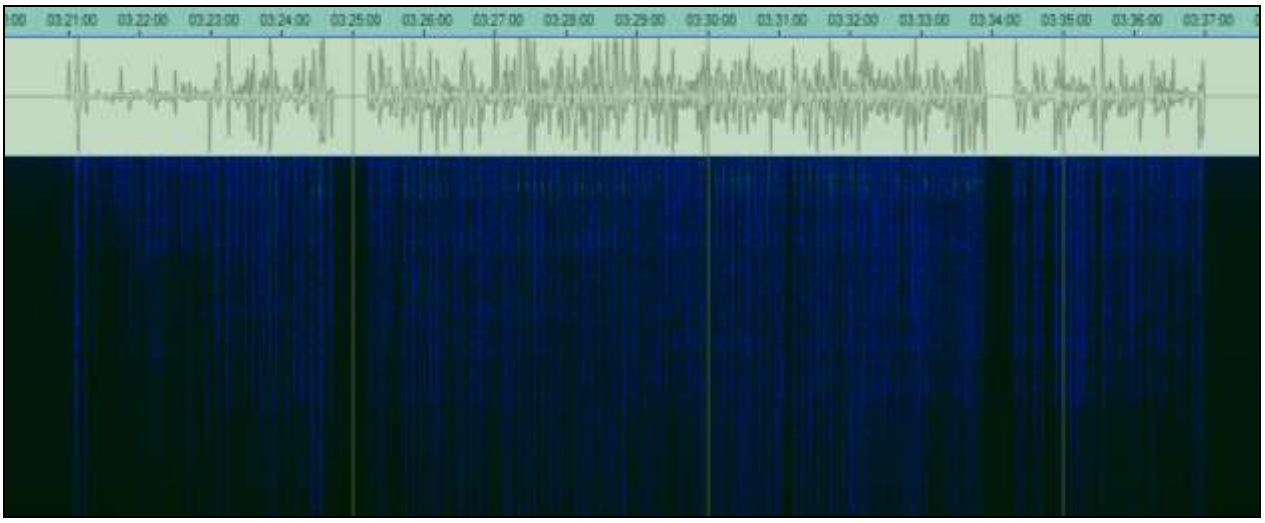
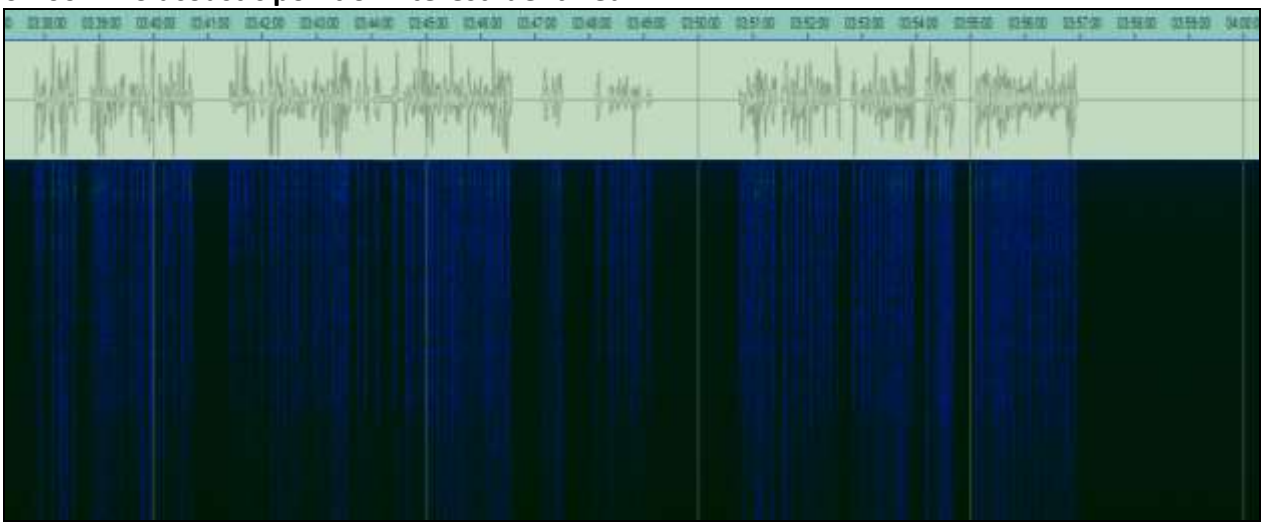
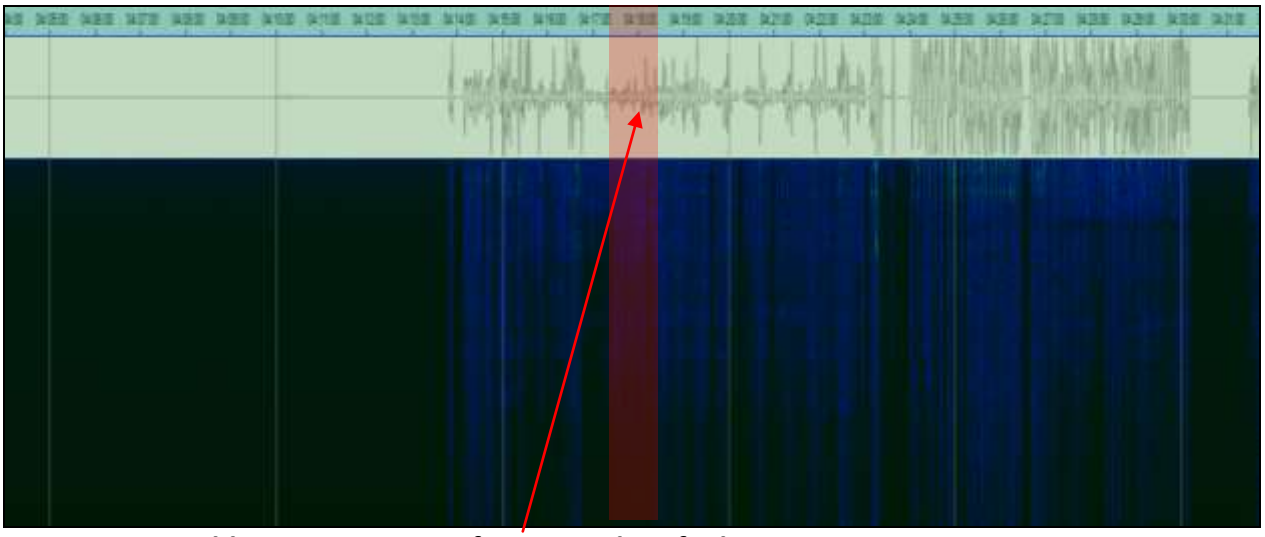


0-100m No acoustic point of interest identified

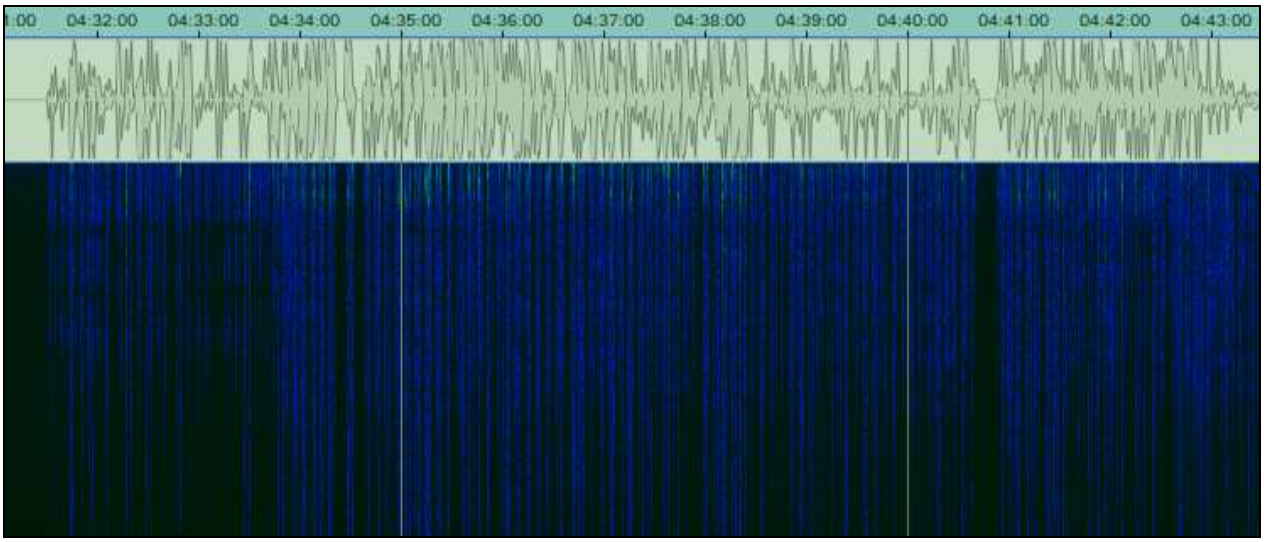


100-225m No acoustic point of interest identified

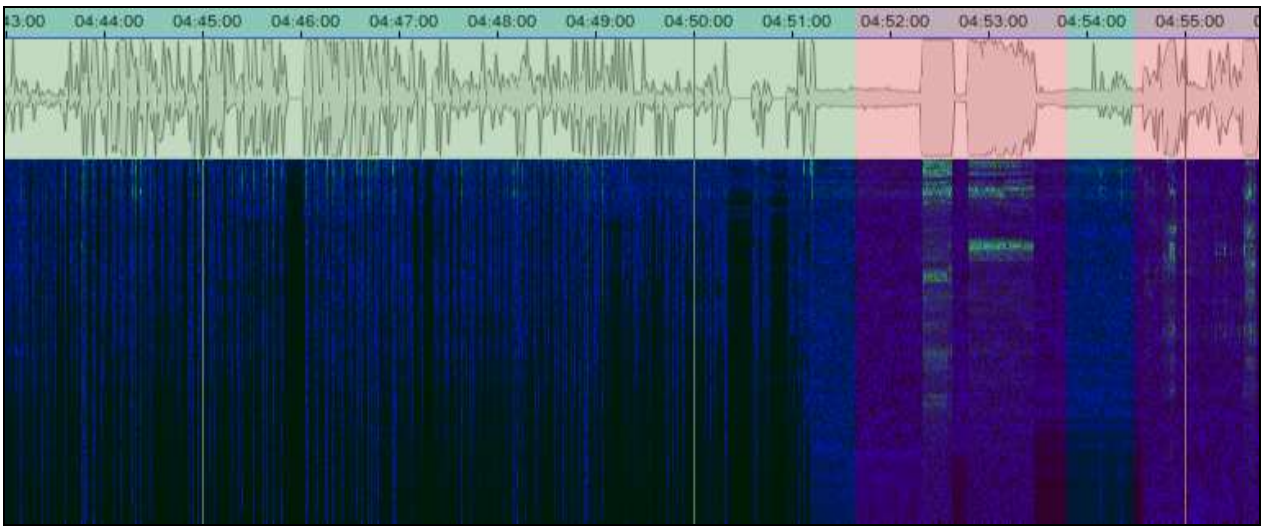


225-350m possible acoustic point of interest identified at 300 metre area

Pressurised Pipe Internal CCTV & Acoustic Report



350-500m no acoustic point of interest identified



500-600m acoustic point of interest identified (depressurising at end of survey)

Post Analysis Results

One clear acoustic band signature is observed during the post analysis of the recorded inspection footage; graph also indicates pressurisation and depressurisation of the sensor.

- SG1 illustrates the sensor moving at the start of the survey
- SG2 illustrates the sensor moving during the survey
- SG3 illustrates water injection and water passing of the exit chamber

No other acoustic peaks identified (leaks) during the data post analysis of the acoustic data.
PIPA Software identifies leaks and illustrates points of interest with solid red banding (see spectrograph above).
Sporadic sound spikes are also present (sensor drag or contacting pipe wall only).
Possible leak detected during survey undertaken at 11 bar pressure only.

Pressurised Pipe Internal CCTV & Acoustic Report

Acoustic post analysis

Both by using software analysis and by listening to the recorded file, there is a short acoustic point of interest identified at 4 hours, 18 minutes and 18 seconds, this equates to the area of 300 metres from sensor insertion point. Site investigations should focus on pipe joints within this area.
Areas of interest identified on video stills listed in red on the report.

CCTV post analysis

Observing the CCTV footage the pipe contains medium to high levels of pipe ingress, this is concentrated mainly at the bottom of the hill section, and up to a distance of 50 metres, which may be removed using a potable adapted jetting system.
Areas of entrapped air pockets are also observed during the pipe inspection survey.

Pressurised Pipe Internal CCTV & Acoustic Report

Additional Information – Site photos

Pressurised Pipe Internal CCTV & Acoustic Report

-End of Inspection Report-

Reviewed By:	C Webster		
Ref:	CW_001	**Date:**	29-1-21
Approved By:	F Orlandi		
Ref:	FO_001	**Date:**	30-1-21

API UK Ltd
Friar Gate Studios
Ford Street
Derby
DE11EE

Tel 01332 258361
www.api-uk.com