

Client	Combined MEC™ Inspection with video	Page 1 of 9
Caisson	MEC™ Internal Caisson (marinised) Inspection Report	Report:J1739



Executive Summary

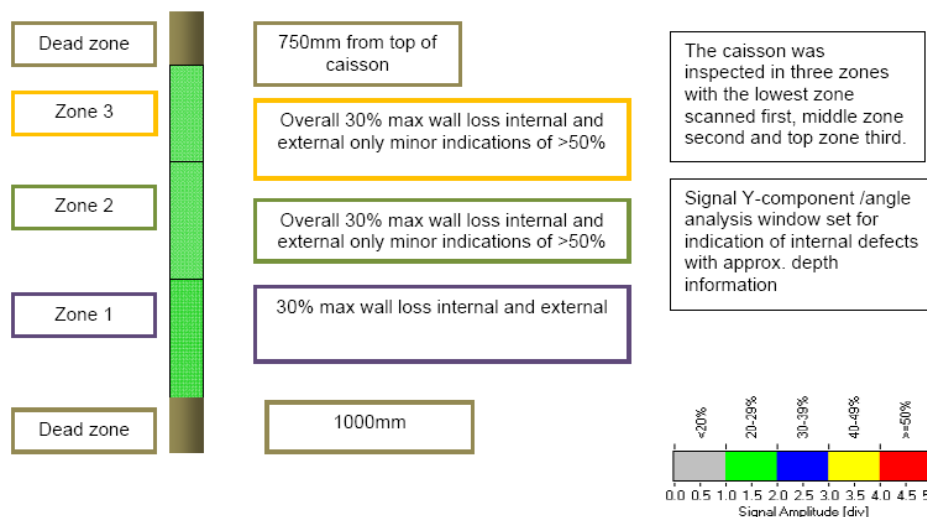
Innospection has carried out an internal **Magnetic Eddy Current (MEC)** inspection on the client's caisson. MEC is the next generation and improved version of **Saturation Low Frequency Eddy Current (SLOFEC™)**. This report details the inspections which were carried out during the inspection campaign.

The MEC™ inspection of the caisson commenced on 13th of March 2014 during which time the 36 metre section was scanned internally. Due to high marine growth at the lower section was not possible to scan as planned however, no significant defect were found on the scanned areas.

All MEC™ Scans are shown in Appendix 1.

A summary of the inspection findings in each of the scanned section is given below:

No.	Pipe zone No.	Caisson Length (mm)	Comments	Max % Wall Loss in Pipe Section	Overview
1	1	15,000	External Corrosion	<30%	Mainly small corrosion areas approx. 10-20mm Very minor indications >50%
2	1	15,000	Internal Corrosion	<30%	Mainly small corrosion areas approx. 10-20mm Very minor indications >50%
3	2	15,000	External Corrosion	<30%	Mainly small corrosion areas approx. 10-20mm Very minor indications >50%
4	2	15,000	Internal Corrosion	<30%	Mainly small corrosion areas approx. 10-20mm Very minor indications >50%
5	3	6,000	External Corrosion	<30%	Mainly small corrosion areas approx. 10-20mm
6	3	6,000	Internal Corrosion	<30%	Mainly small corrosion areas approx. 10-20mm



Client	Combined MEC™ Inspection with video	Page 2 of 9
Caisson	MEC™ Internal Caisson (marinised) Inspection Report	Report:J1739



1.0) Inspection Volume

The MEC™ Scans were taken over 360° coverage of the caisson. This report focuses on a 36m section of the caissons. The seam welds including the heat affected zones were not scanned due to the limit of the technique scanning welds in perpendicular direction.

All accessible areas of the caisson were targeted for inspection with the exception of specific dead zones, which could not be inspected due to the design of the scanner i.e. the wheels of the scanner butted against a circumferential weld bead.

The Dead Zone refers to the following areas:

2.0) Inspection Equipment

2.1) MEC™ Equipment Marinised PS200

The inspection system consisted of the following MEC™ Equipment and accessories.

Scanner : MEC™ Marinised PS 200 (width 200mm)

Description of Scanner : The MEC™ Marinised PS 200 is a winch driven system, consisting of a scanner head with eight individual eddy current sensor coils each with a width of 25mm, these coils being mounted to provide an internal circumferential array covering 200mm of the internal bore. The sensors are supplied and controlled by a multiplexed electronic system feeding data to an eddymax computer. The scanner head is adjustable in height for lift off.

Each side of these coils are fitted two DC electromagnets powered by an 110v DC amplifier variable power supply.

A multiple regulated electric winch system is used to pull the scanner through the caisson.

A pulley system (sheave wheel) fitted to the umbilical supply is connected to an encoder for the calculation of accurate distance travelled.

Scanning Speed : 100% (approx.: 24m/min)

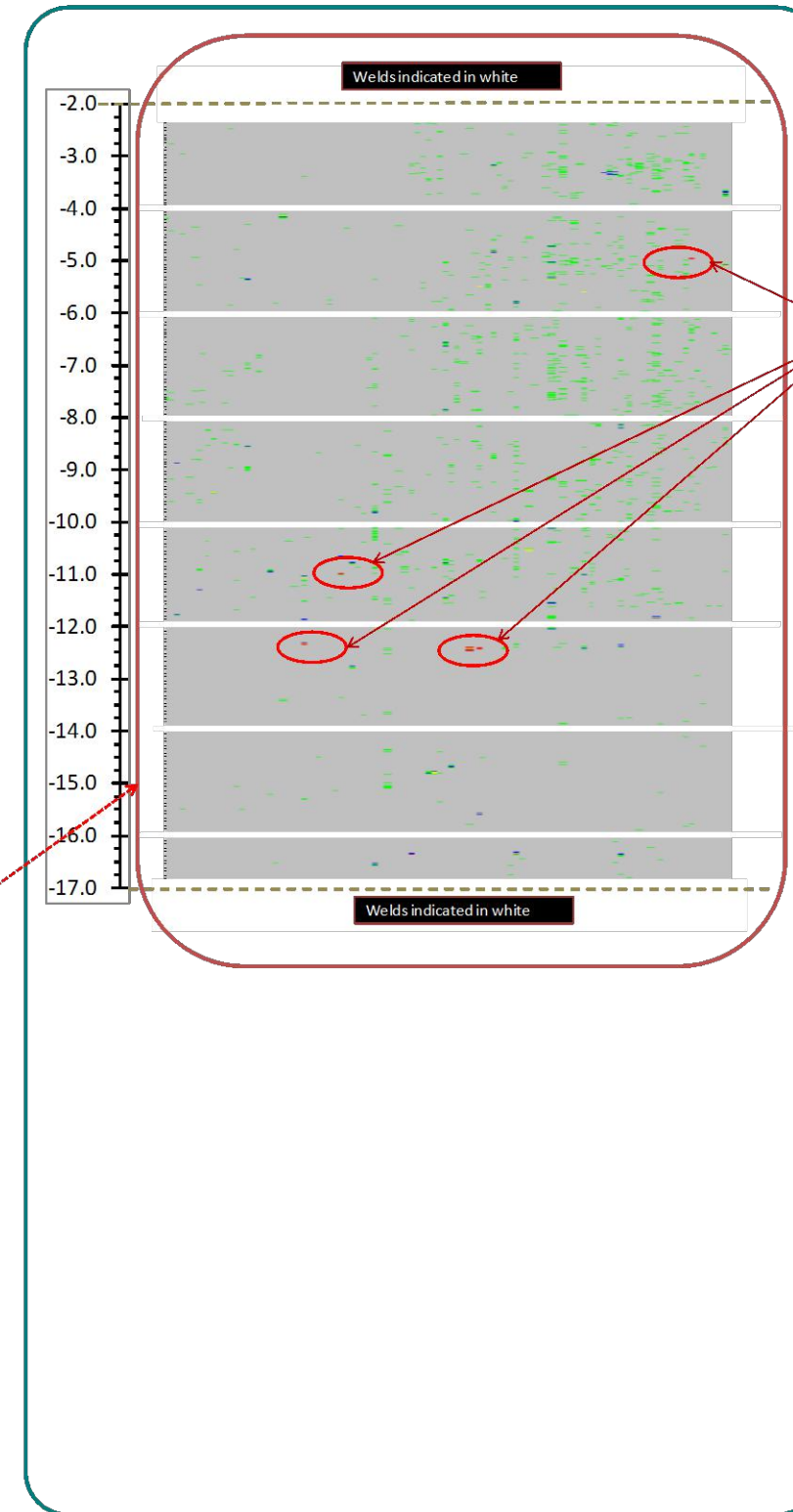
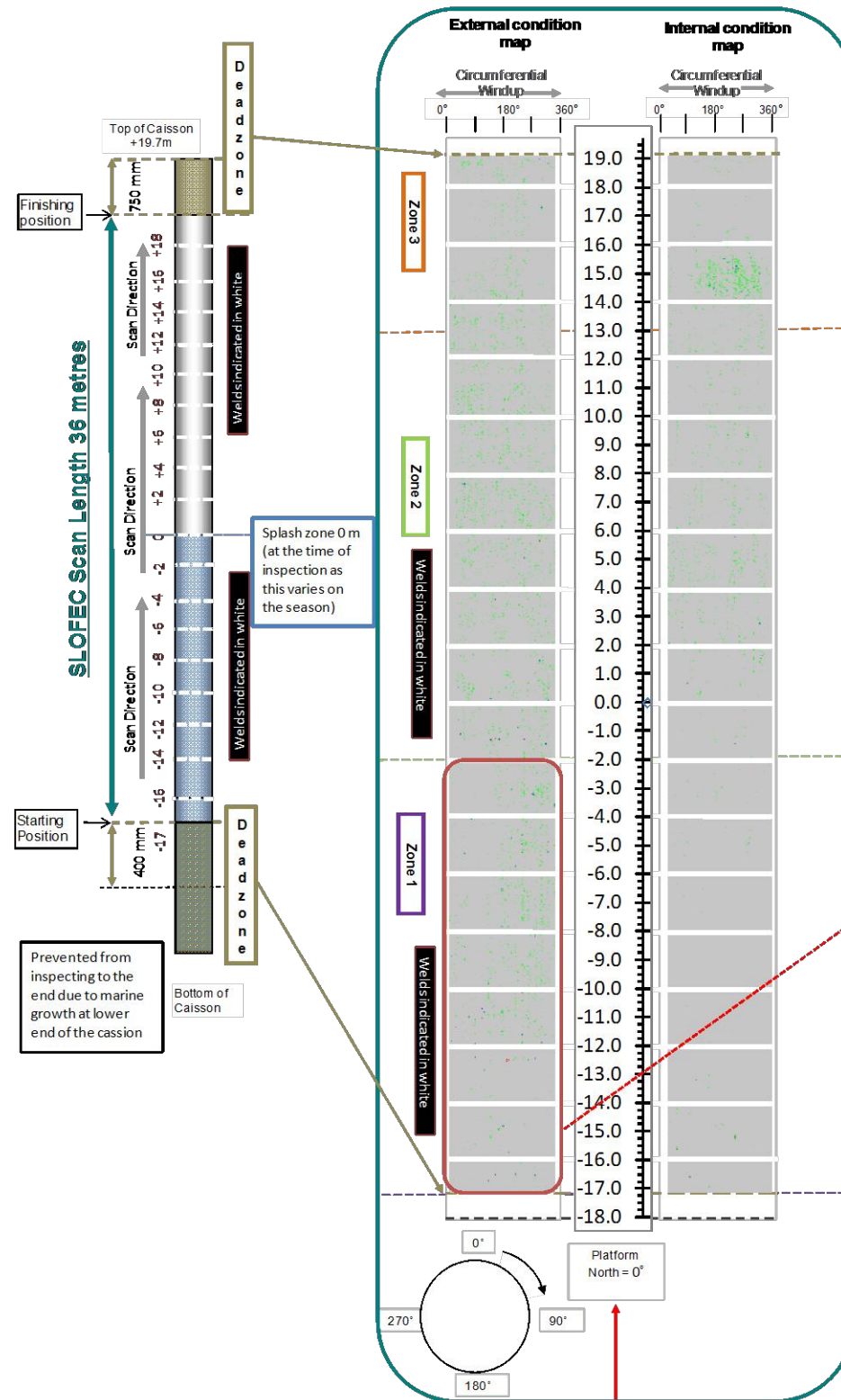
Client	Combined MEC™ Inspection with video	Page 3 of 9
Caisson	MEC™ Internal Caisson (marinised) Inspection Report	Report:J1739



- Eddy Current Instrument : IBM-AT-compatible computer with 2-frequency Eddy current plug-in cards.
Type: eddyMax Beltronic
- Eddy Current Sensors : 8 x EC-B-25 mm
- Software Version : EddyMax Eddy Current Multiplex Software
Version 5.10.05.27
- Winch with Cable : The winch that operates the scanner is fitted with a 150m umbilical and is operated with 110v power supply, via a remote control unit.
- Reference Plate : External and internal set of two samples.
36" x 16mm WT Carbon Steel from Innospection.
36" x 16mm WT Carbon Steel from Innospection.
- Reference defects : Groove (depth 10 %) for sensor conformity setting.
Flat Bottomed holes Ø 12.5mm, 25mm and 50mm.
Depth 20%, 40%, 60% and 80%.
Through Wall holes Ø 6mm.

Client	Combined MEC™ Inspection with video	Page 4 of 9
Caisson	MEC™ Internal Caisson (Marinised) Inspection Report	Report:J1739

External Scan Report Zone 1

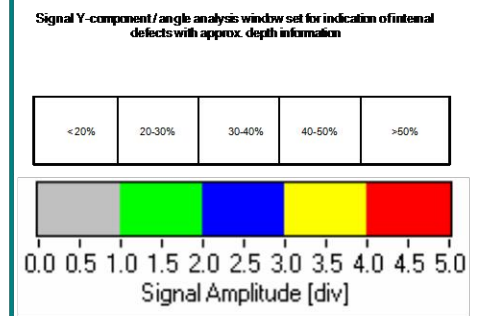


Remarks

No severe wall losses:
Maximum wall loss up to 30%. Very minor indications of >50% wall loss (In comparison to calibration)

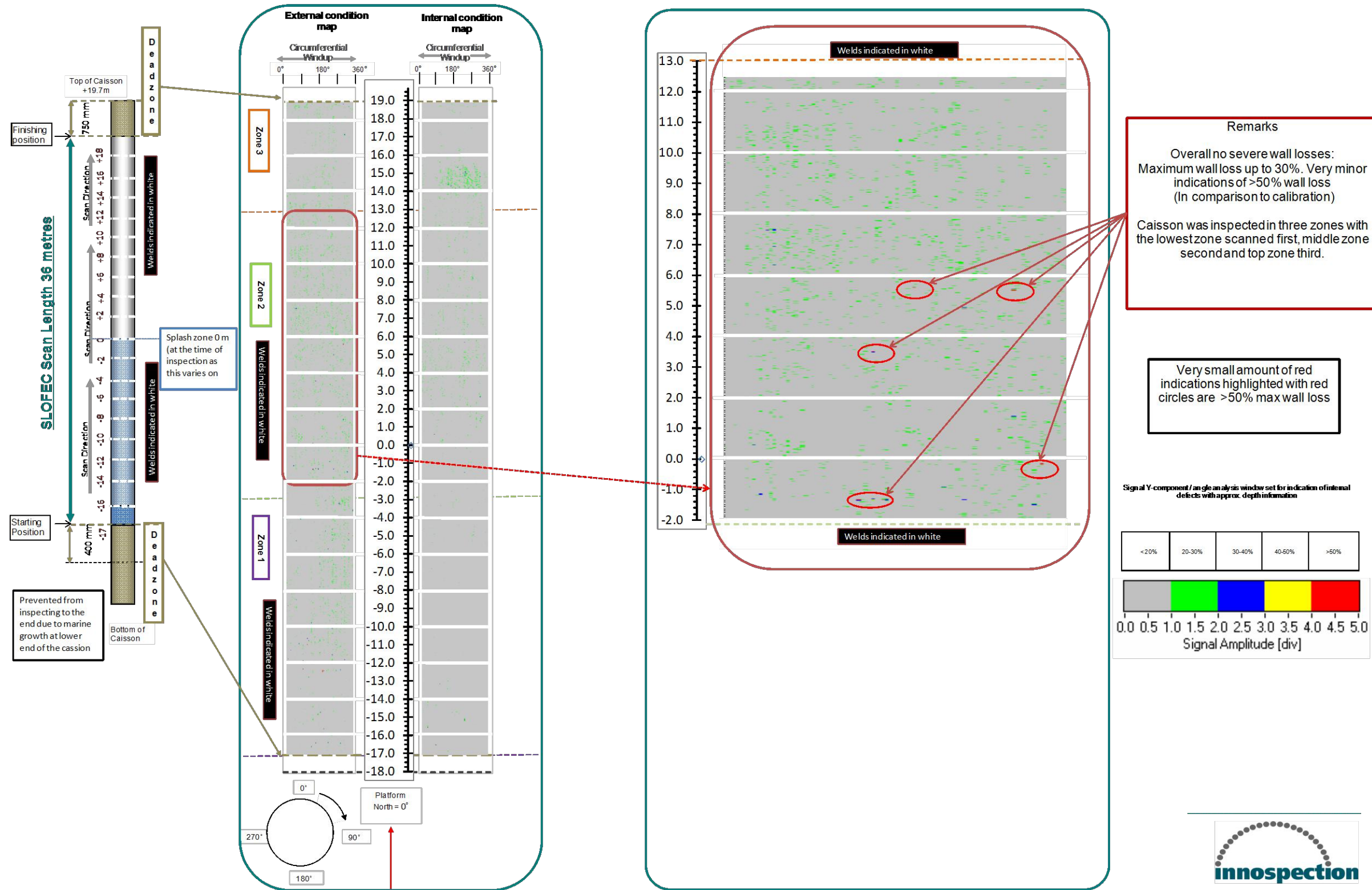
Caisson was inspected in three zones with the lowest zone scanned first, middle zone second and top zone third.

Very small amount of red indications highlighted with red circles are >50% max wall loss



Client	Combined MEC™ Inspection with video	Page 6 of 9
Caisson	MEC™ Internal Caisson (Marinised) Inspection Report	Report:J1739

External Scan Report Zone 2



Client	Combined MEC™ Inspection with video	Page 7 of 9
Caisson	MEC™ Internal Caisson (Marinised) Inspection Report	Report:J1739

Internal Scan Report Zone 2

