

Comparison of Structural Integrity Manual Phased Array Sizing Measurements Taken on Safety Nozzle “A” Versus LMT Manually Encoded Data

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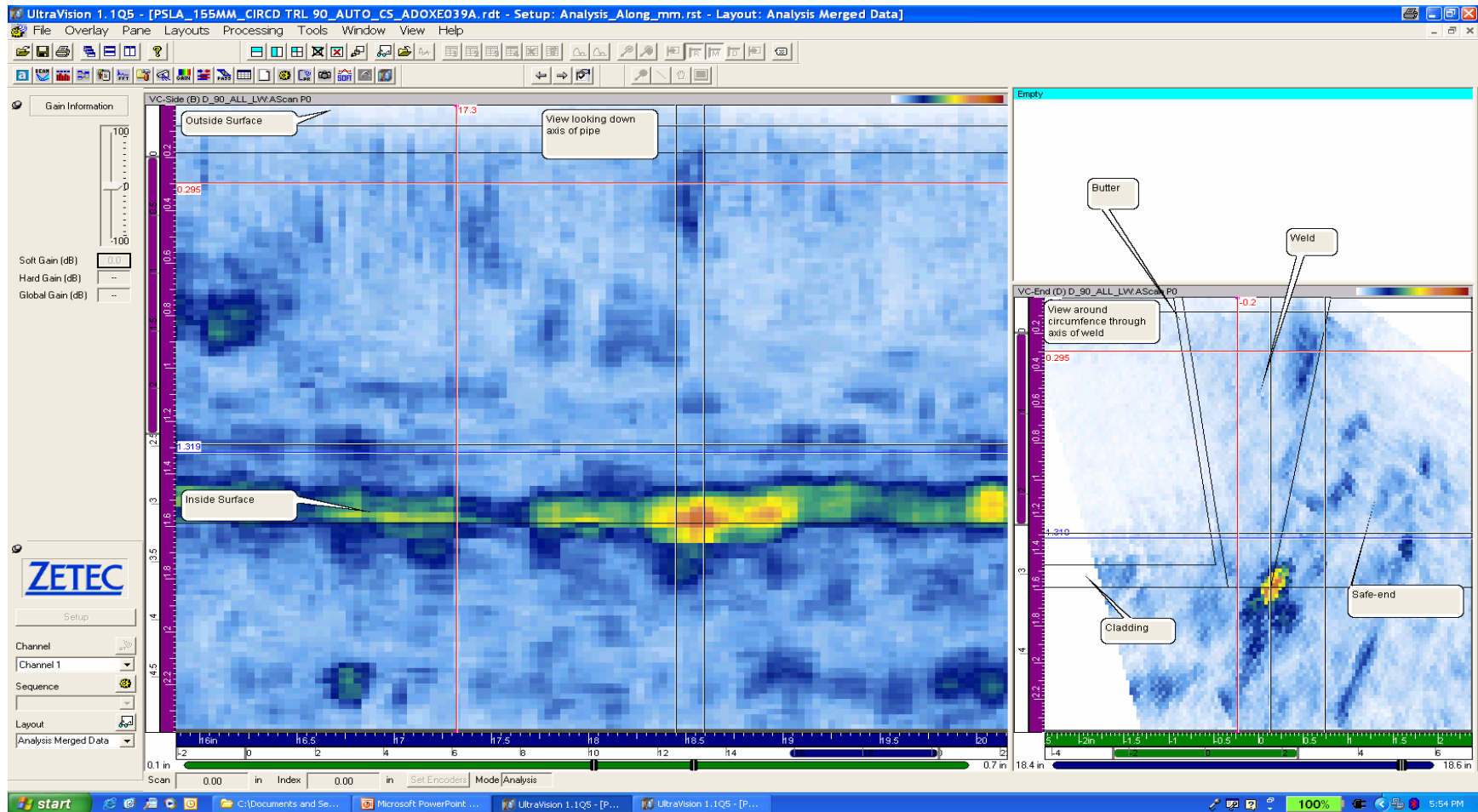
Comparison

- Objective
 - Evaluate Structural Integrity Depth Sizing Measurements using LMT Manually Encoded Data
 - Determine if any of the reported flaws are connected to inside surface
 - Determine origin of tip signals reported

Comparison

- Approach
 - Perform side by side comparison of sizing data taken on Safety nozzle A
 - Optimize views
 - Determine if target is present
 - Measure maximum extent
 - Determine if there is evidence present that the flaw is connected to the inside surface

Overview of LMT Analysis Views



3/13/2008

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4

VC sectorial scan Channel 1: Beam 67 R: 66.00 S: 90.00 Main Gate P0
DataFile: S1001.rdt

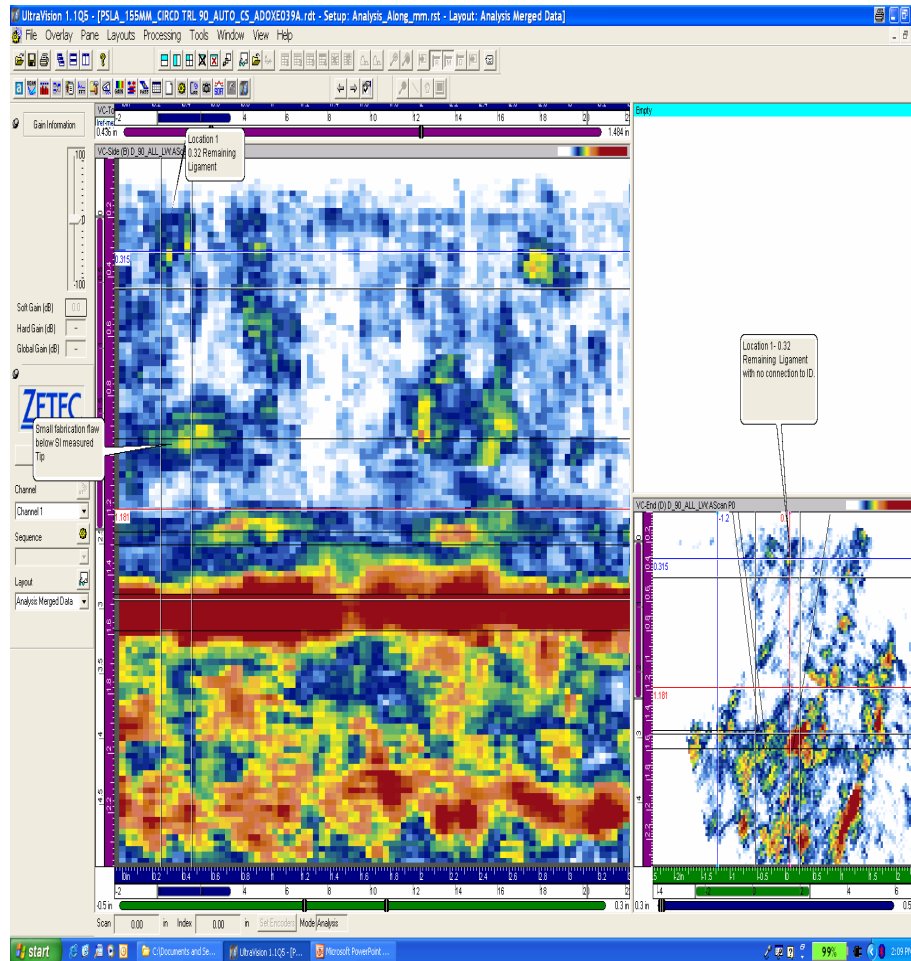
Sector Scan Showing all angles 0-70 degrees

Angle S

Ampl max: 65.9 % Pos Ampl max: 0.32 in

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Location 1 Comparison at 0"



"A" Safety Circumferential Indication Profile Data

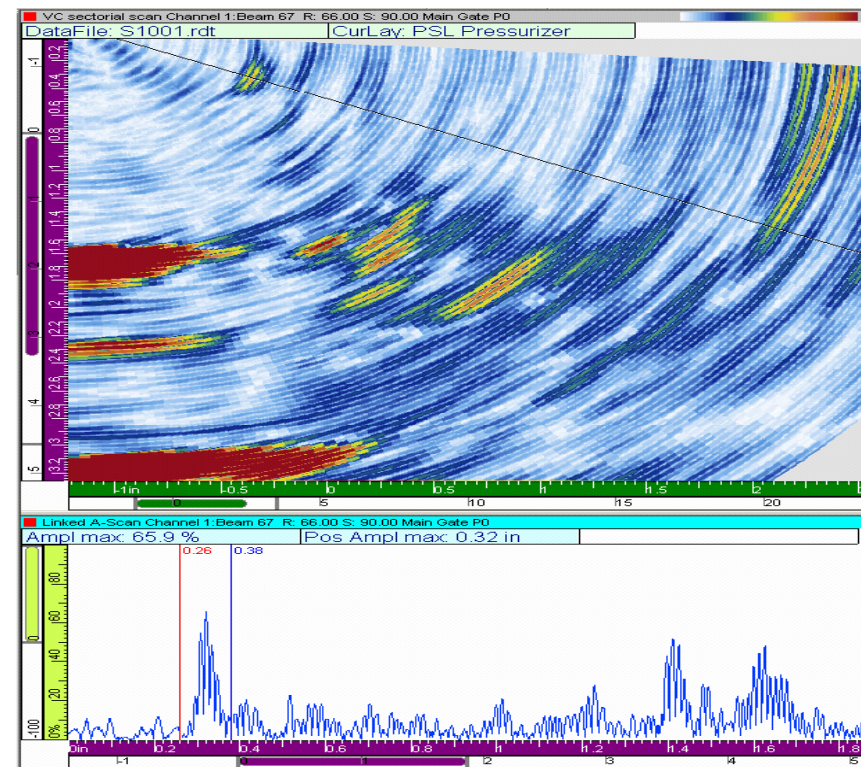
Location: At the "0" stamp (circumferential reference point)

Part Thickness used for calculation: 1.7 inches

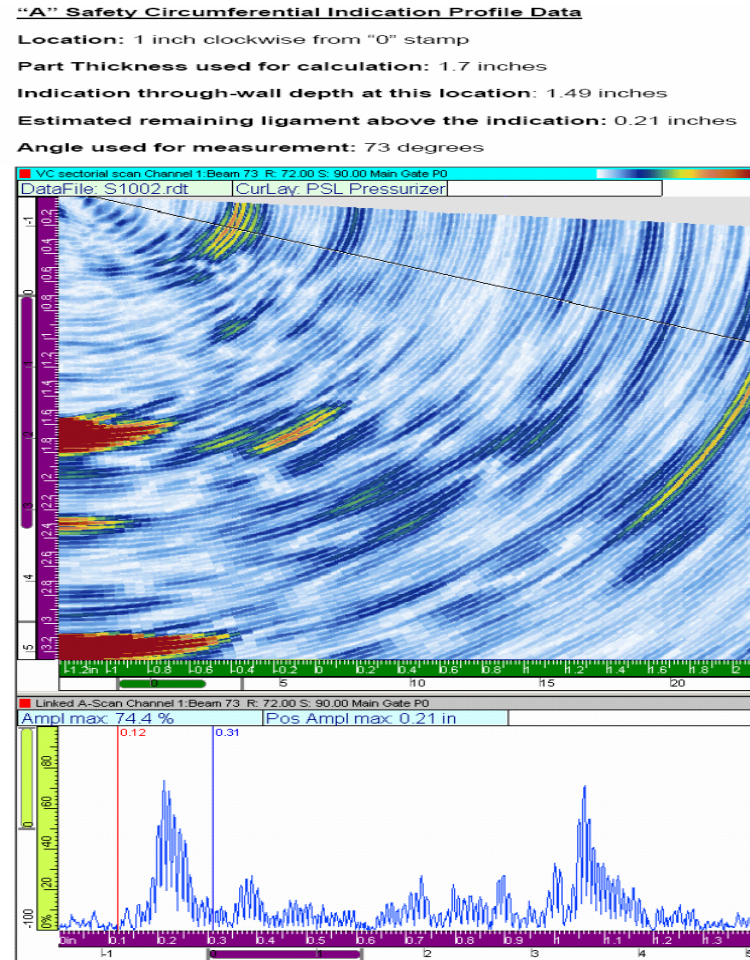
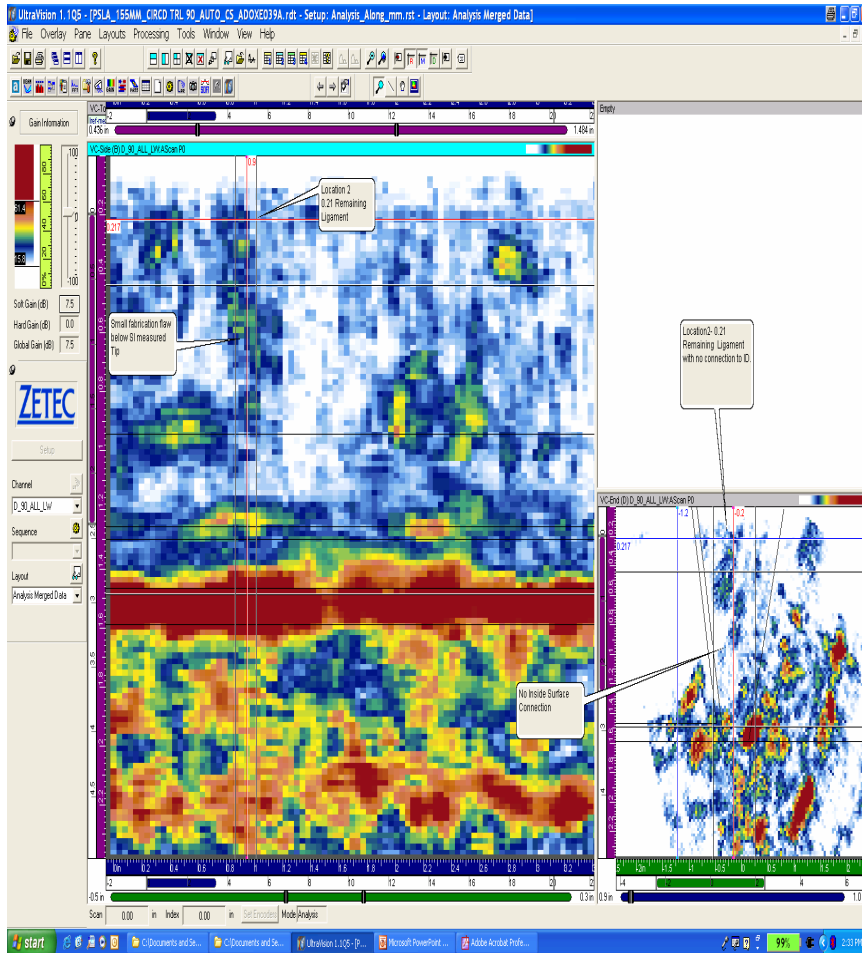
Indication through-wall depth at this location: 1.38 inches

Estimated remaining ligament above the indication: 0.32 inches

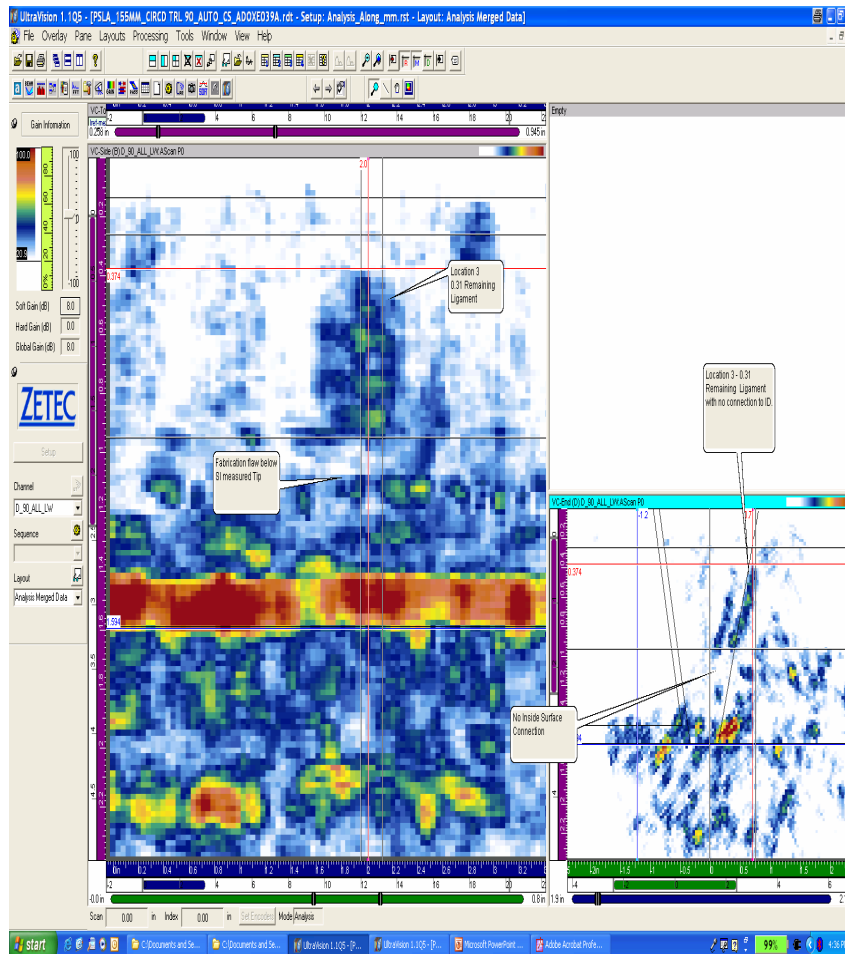
Angle used for measurement: 67 degrees



Location 2 Comparison at 1.0"



Location 3 Comparison at 2.0"



"A" Safety Circumferential Indication Profile Data

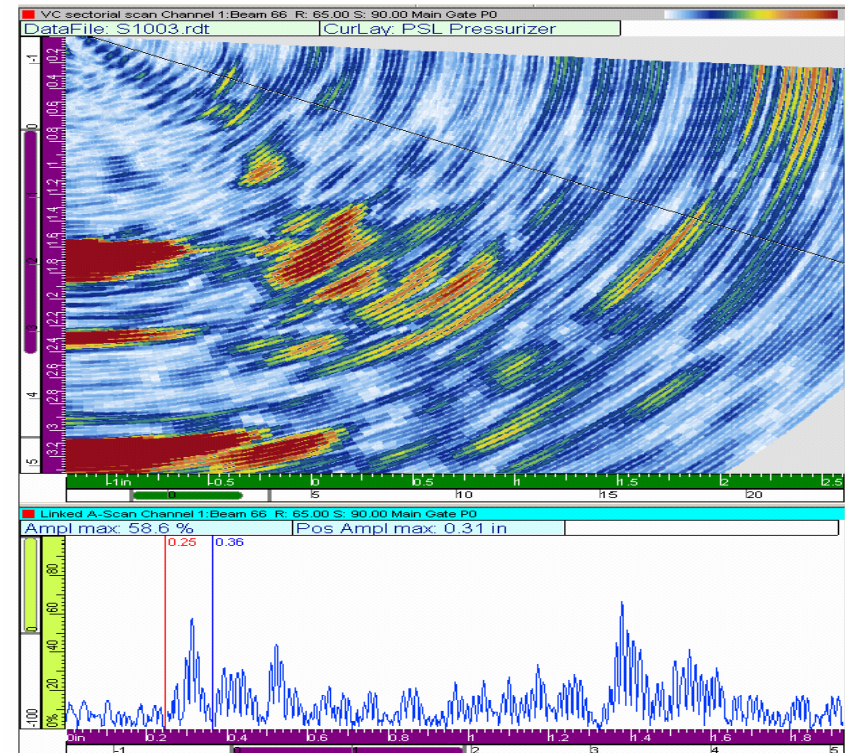
Location: 2 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

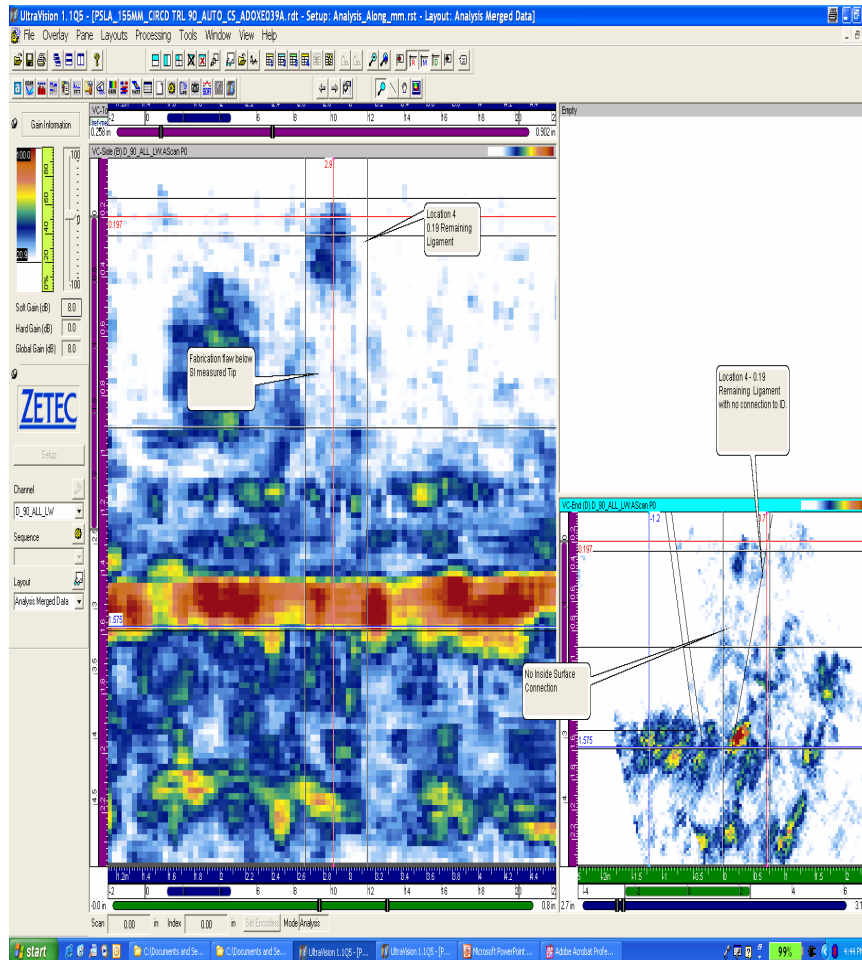
Indication through-wall depth at this location: 1.39 inches

Estimated remaining ligament above the indication: 0.31 inches

Angle used for measurement: 66 degrees



Location 4 Comparison at 3.0"



"A" Safety Circumferential Indication Profile Data

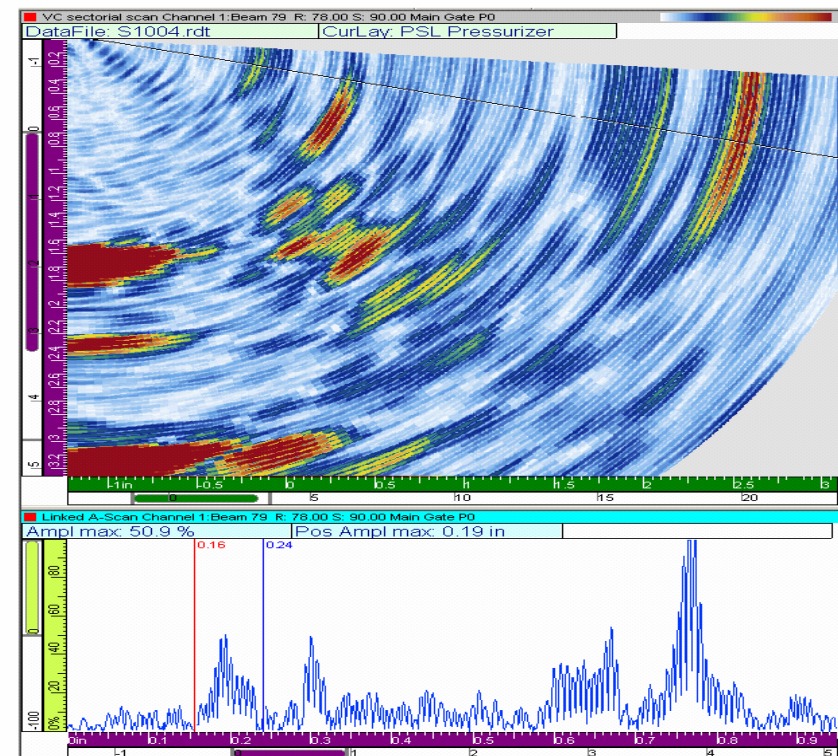
Location: 3 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

Indication through-wall depth at this location: 1.51 inches

Estimated remaining ligament above the indication: 0.19 inches

Angle used for measurement: 79 degrees

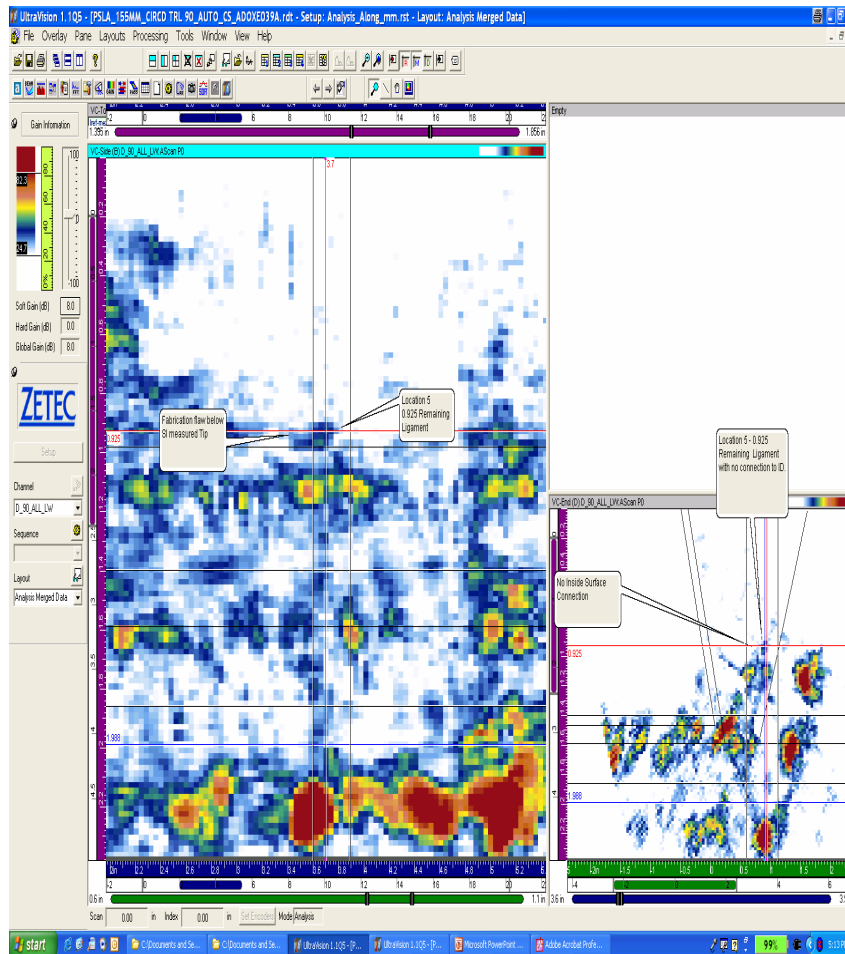


3/13/2008

DRAFT

9

Location 5 Comparison at 4.0"



"A" Safety Circumferential Indication Profile Data

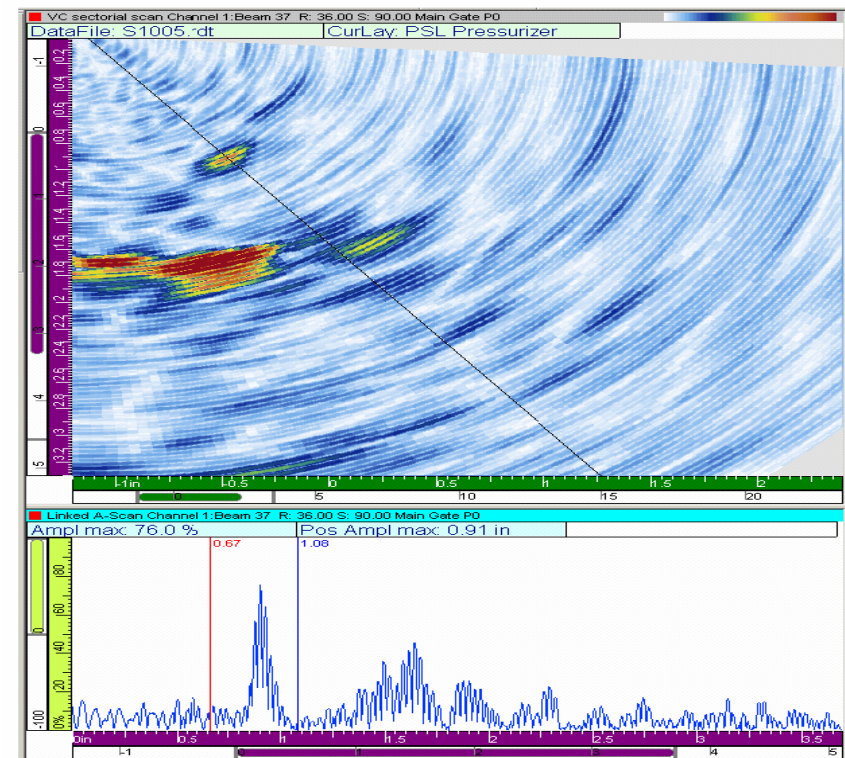
Location: 4 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

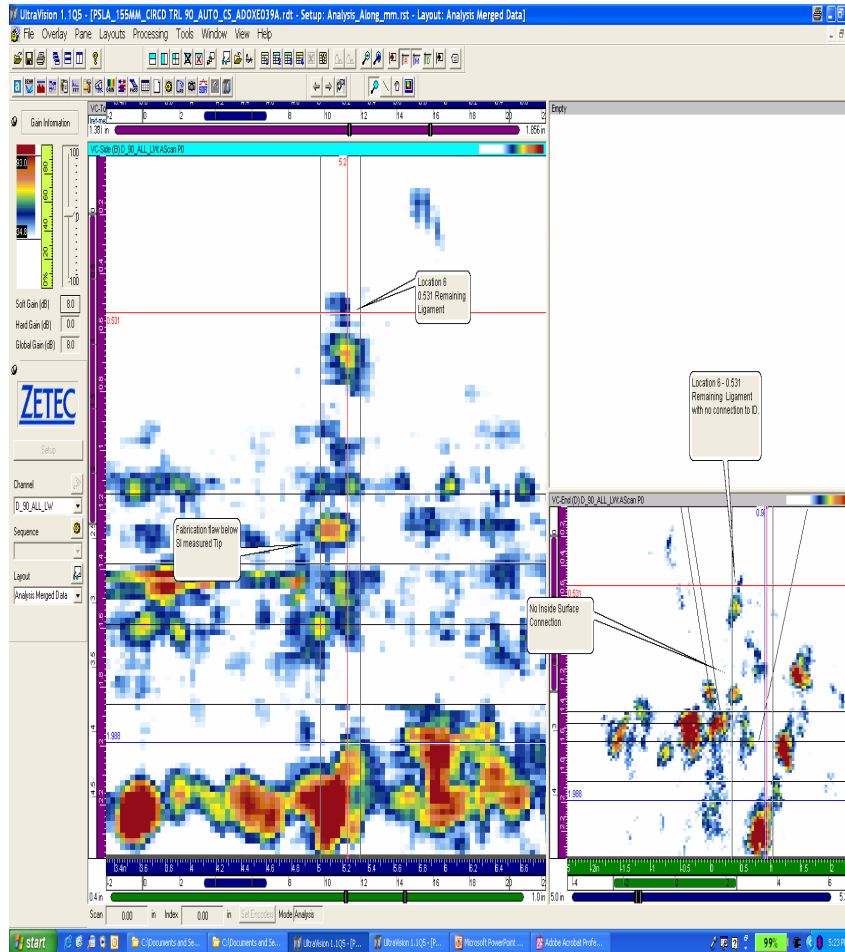
Indication through-wall depth at this location: 0.79 inches

Estimated remaining ligament above the indication: 0.91 inches

Angle used for measurement: 37 degrees



Location 6 Comparison at 5.0"



"A" Safety Circumferential Indication Profile Data

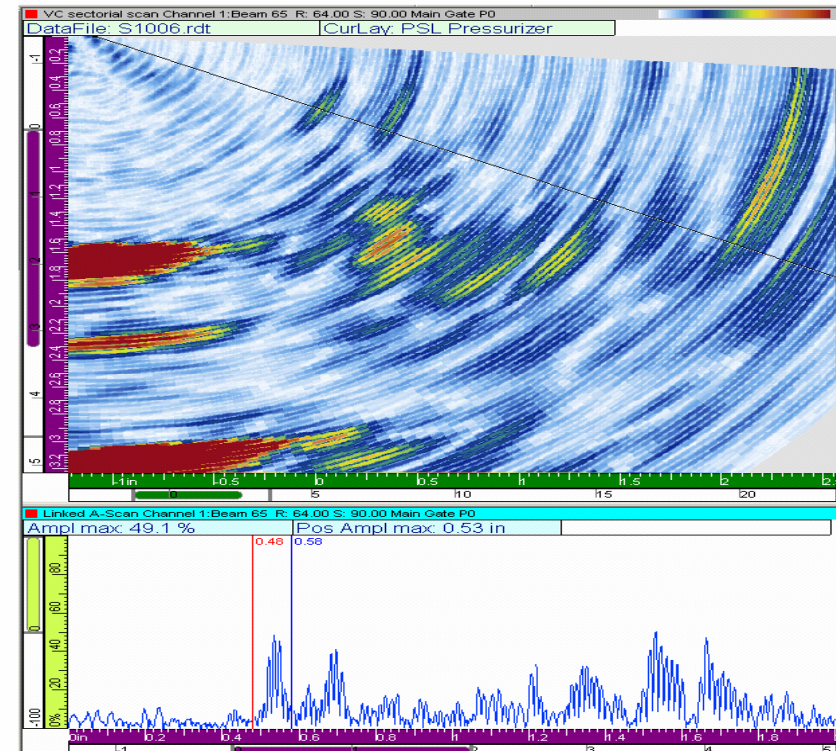
Location: 5 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

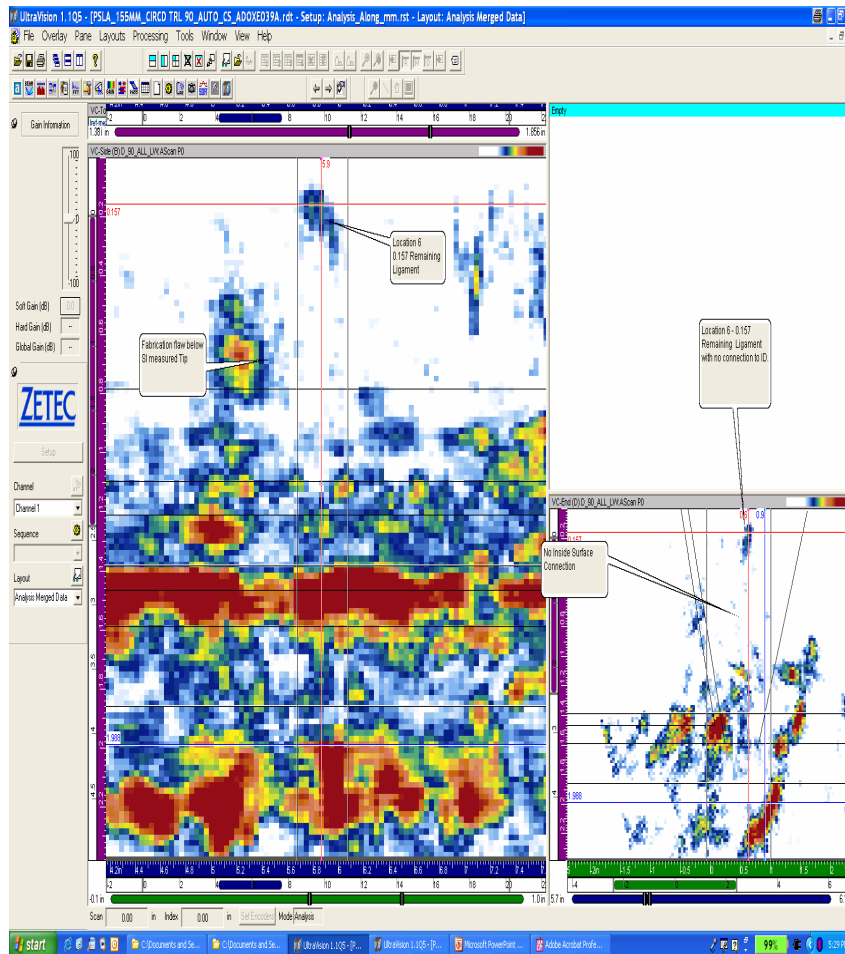
Indication through-wall depth at this location: 1.17 inches

Estimated remaining ligament above the indication: 0.53 inches

Angle used for measurement: 65 degrees



Location 7 Comparison at 6.0"



"A" Safety Circumferential Indication Profile Data

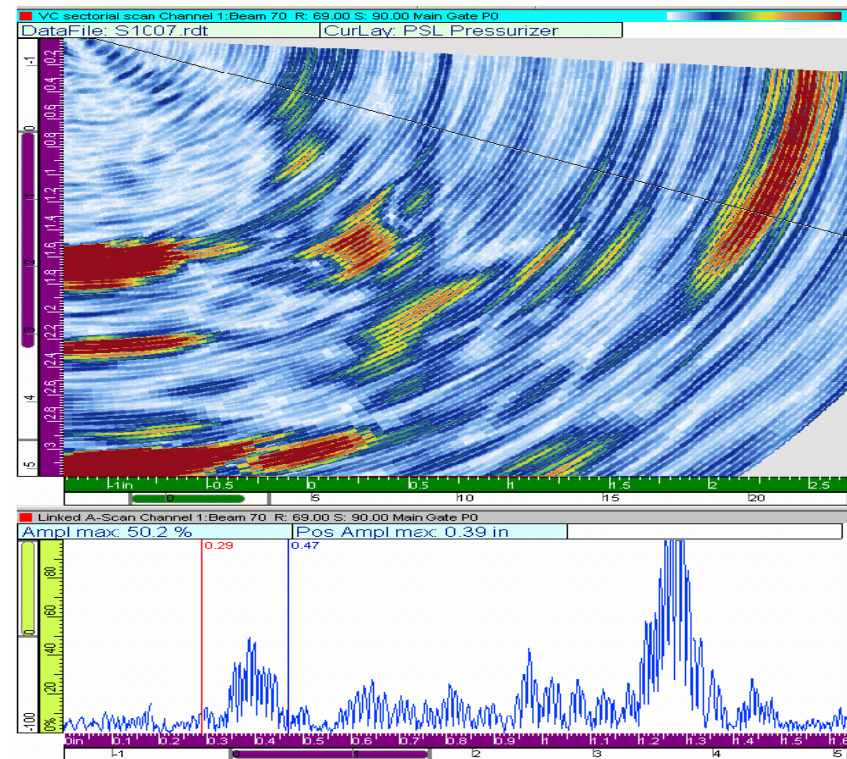
Location: 6 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

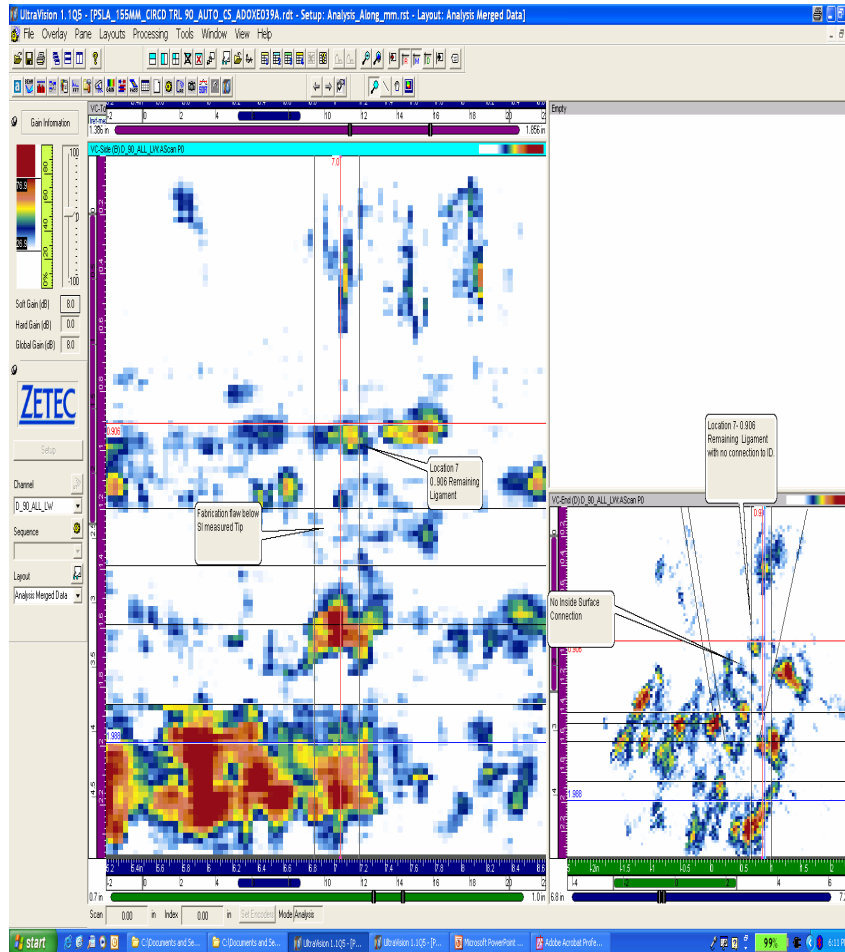
Indication through-wall depth at this location: 1.31 inches

Estimated remaining ligament above the indication: 0.39 inches

Angle used for measurement: 70 degrees



Location 8 Comparison at 7.0"



"A" Safety Circumferential Indication Profile Data

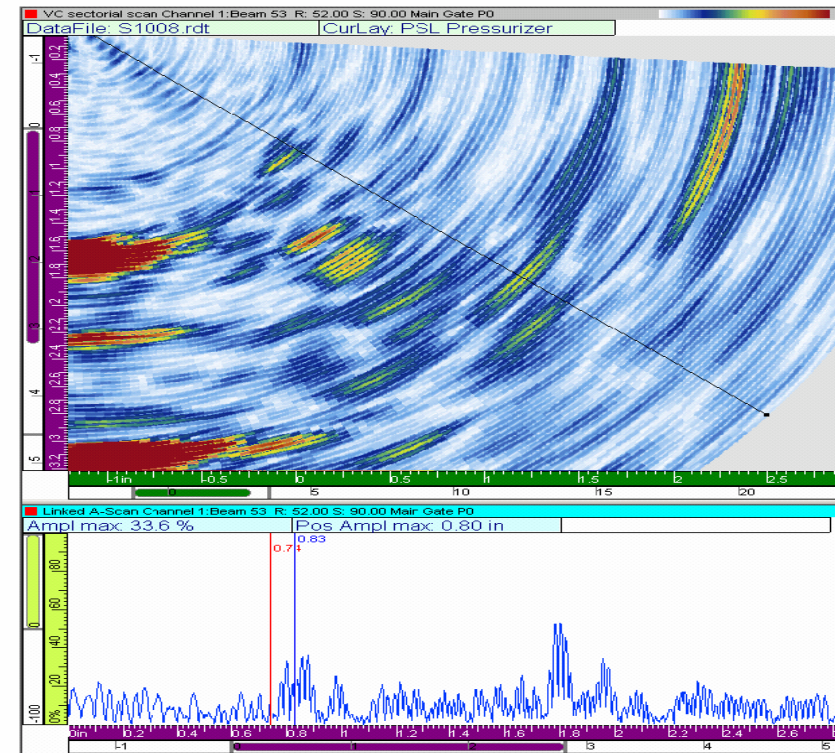
Location: 7 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

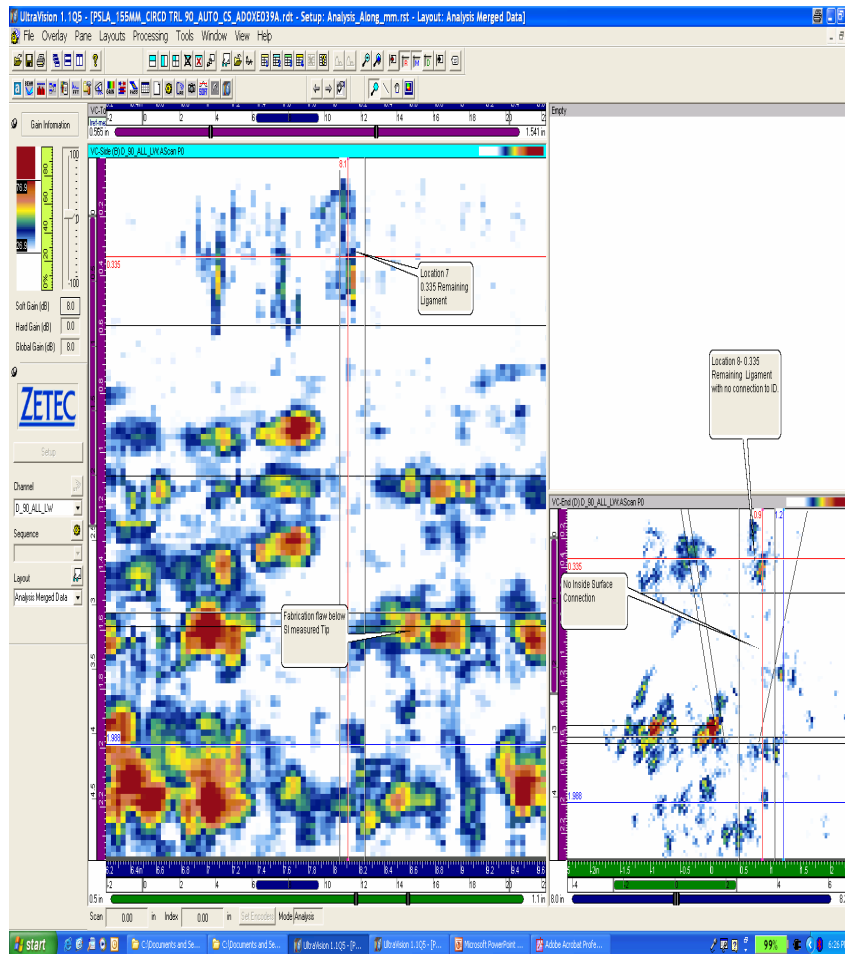
Indication through-wall depth at this location: 0.9 inches

Estimated remaining ligament above the indication: 0.80 inches

Angle used for measurement: 53 degrees



Location 9 Comparison at 8.0"



"A" Safety Circumferential Indication Profile Data

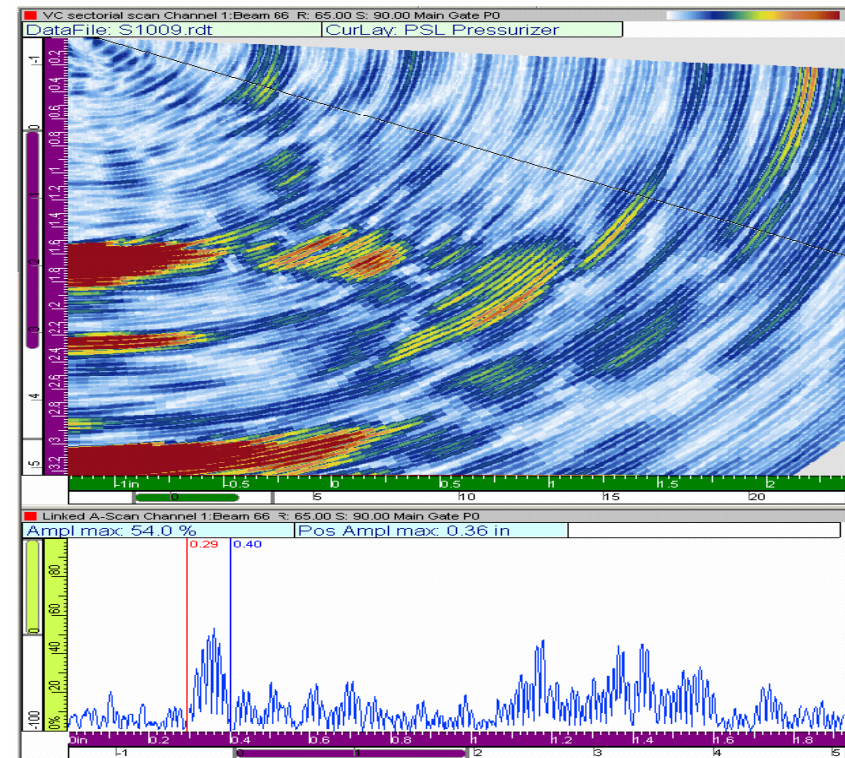
Location: 8 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

Indication through-wall depth at this location: 1.34 inches

Estimated remaining ligament above the indication: 0.36 inches

Angle used for measurement: 66 degrees

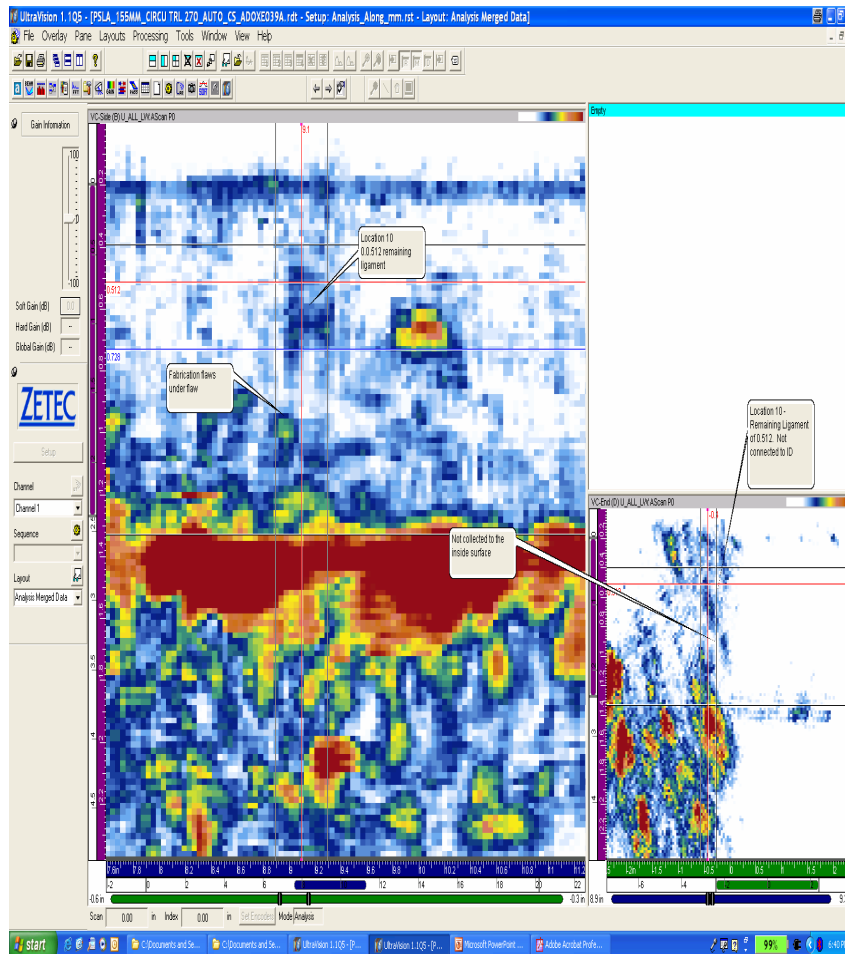


3/13/2008

DRAFT

14

Location 10 Comparison at 9.0"



"A" Safety Circumferential Indication Profile Data

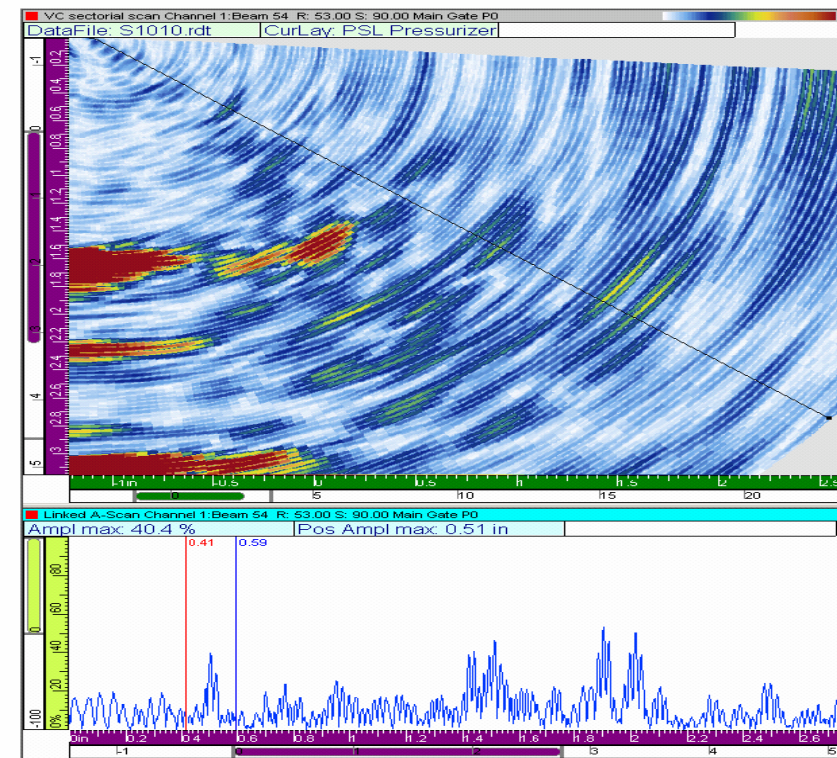
Location: 9 inches clockwise from "O" stamp

Part Thickness used for calculation: 1.7 inches

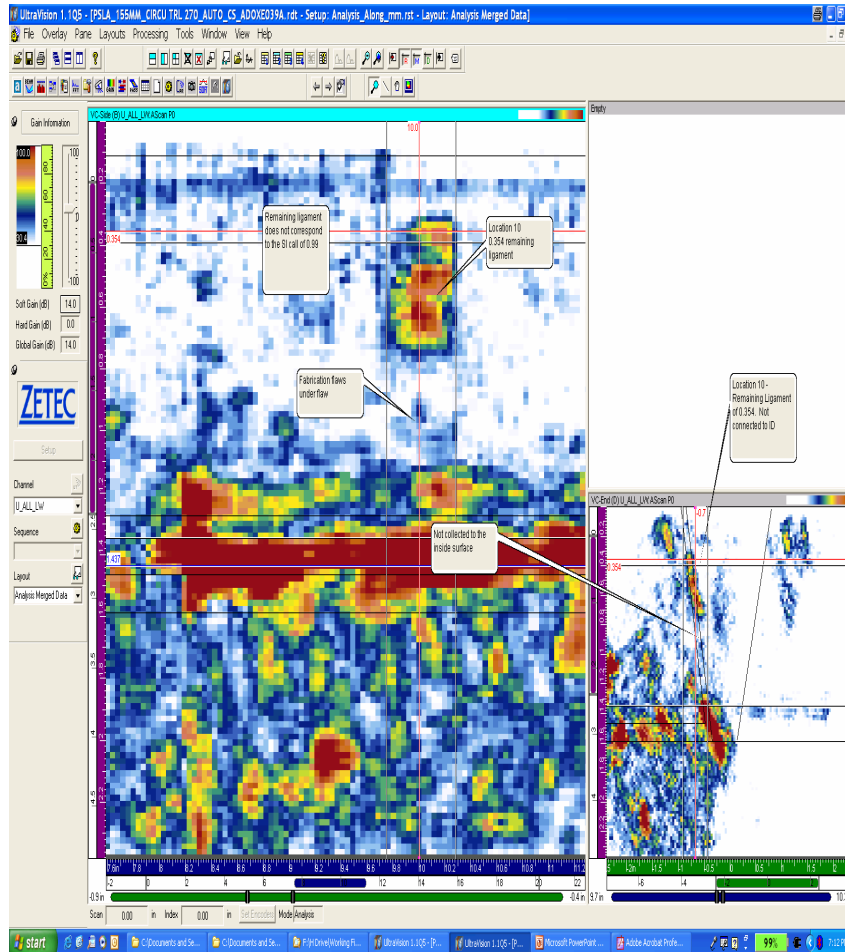
Indication through-wall depth at this location: 1.19 inches

Estimated remaining ligament above the indication: 0.51 inches

Angle used for measurement: 54 degrees



Location 11 Comparison at 10.0"



"A" Safety Circumferential Indication Profile Data

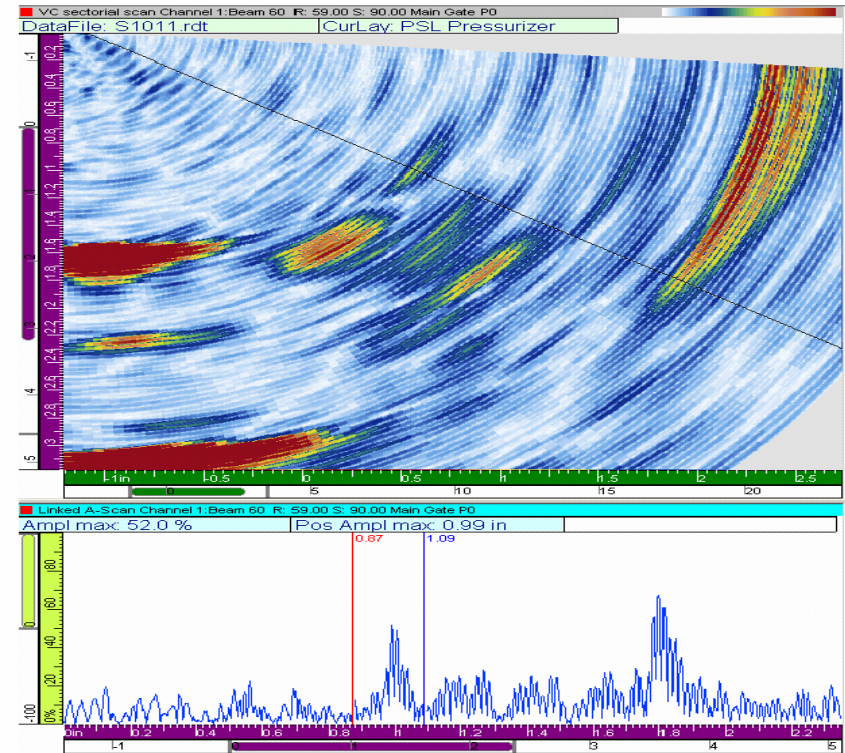
Location: 10 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

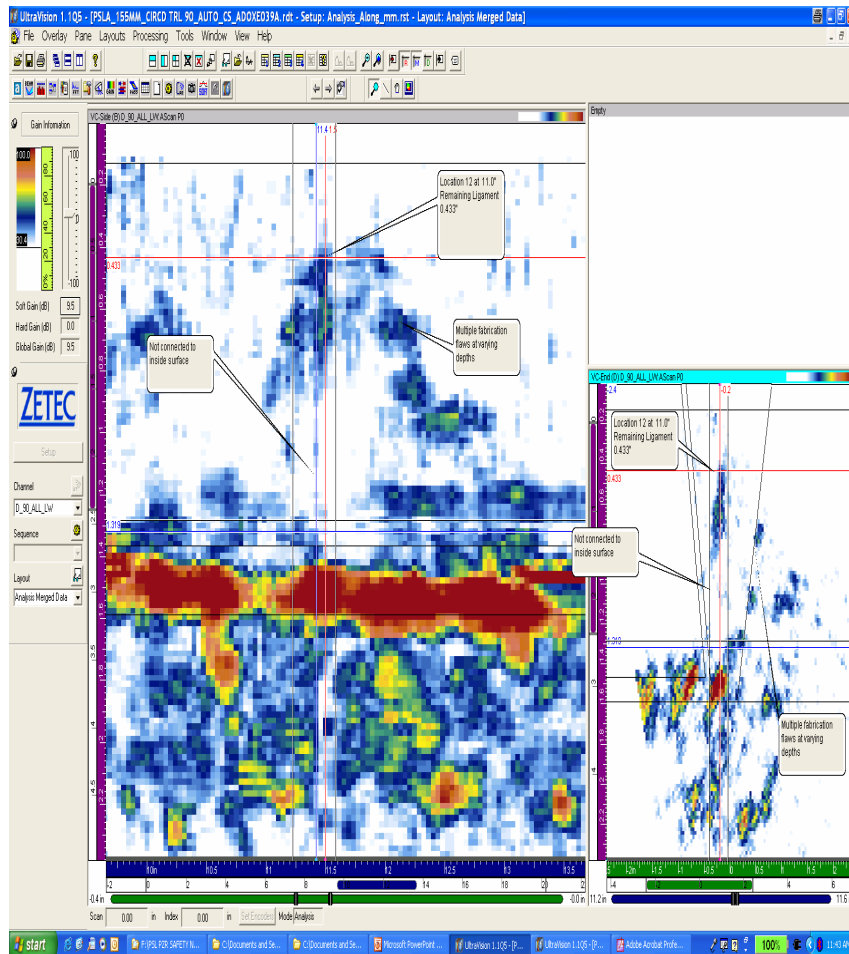
Indication through-wall depth at this location: 0.71 inches

Estimated remaining ligament above the indication: 0.99 inches

Angle used for measurement: 60 degrees



Location 12 Comparison at 11.0"



"A" Safety Circumferential Indication Profile Data

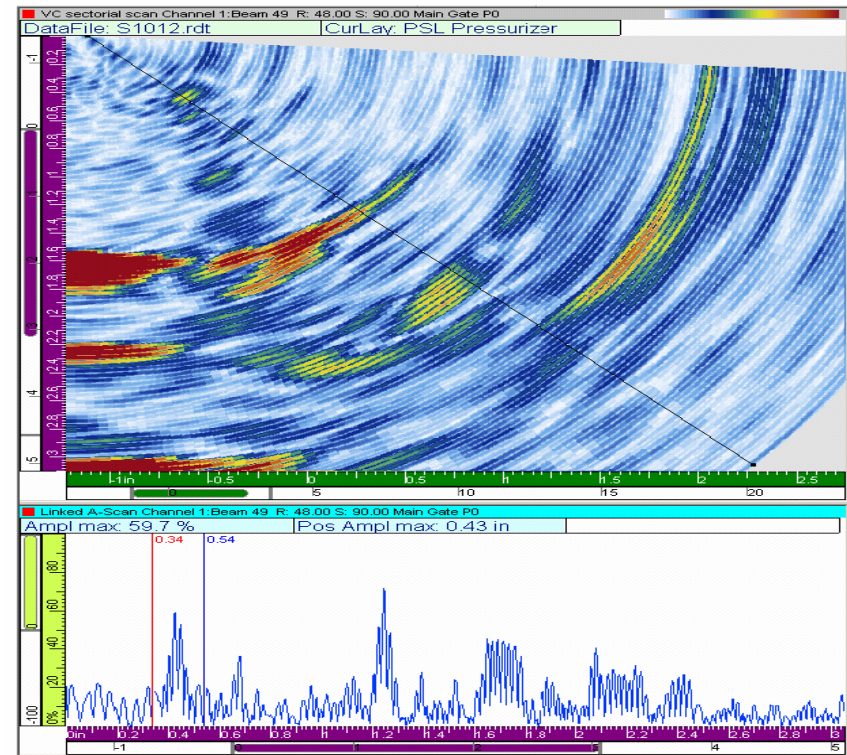
Location: 11 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

Indication through-wall depth at this location: 1.27 inches

Estimated remaining ligament above the indication: 0.43 inches

Angle used for measurement: 49 degrees

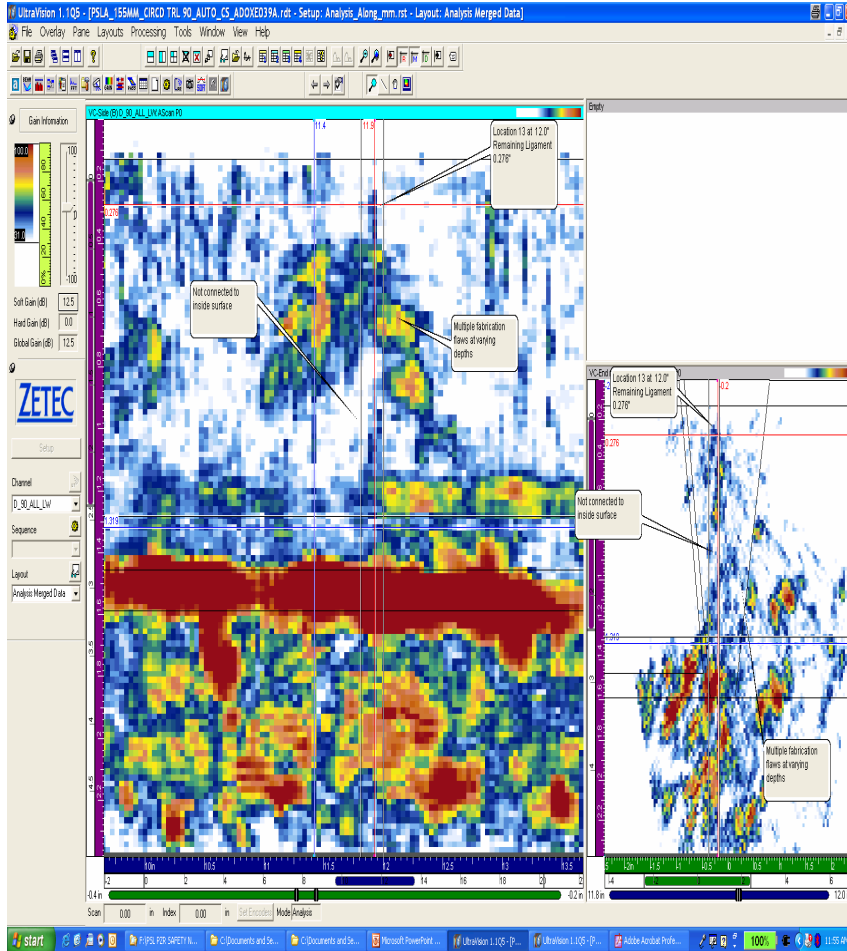


3/13/2008

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17

Location 13 Comparison at 12.0"



"A" Safety Circumferential Indication Profile Data

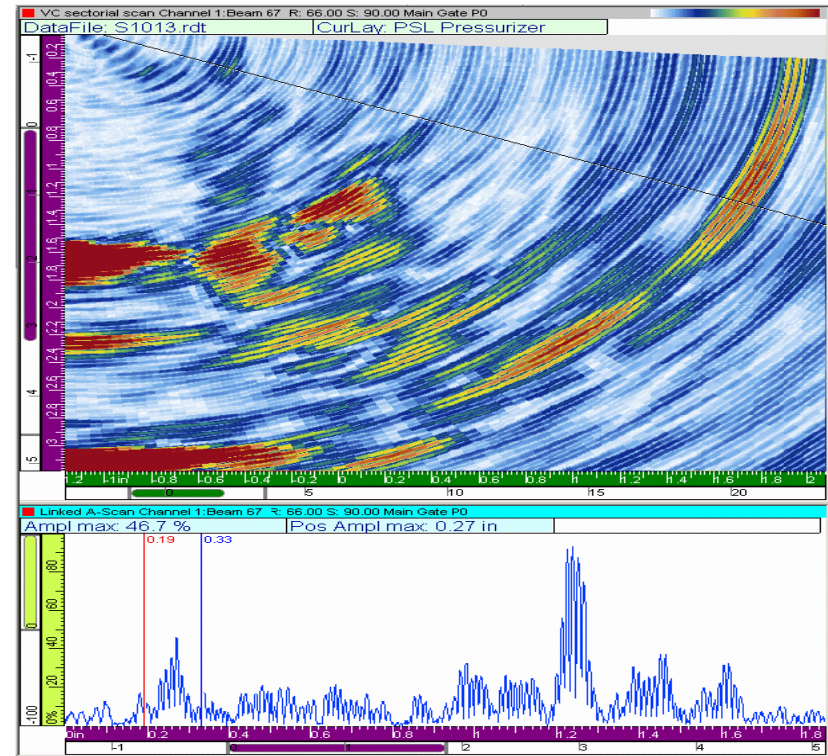
Location: 12 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

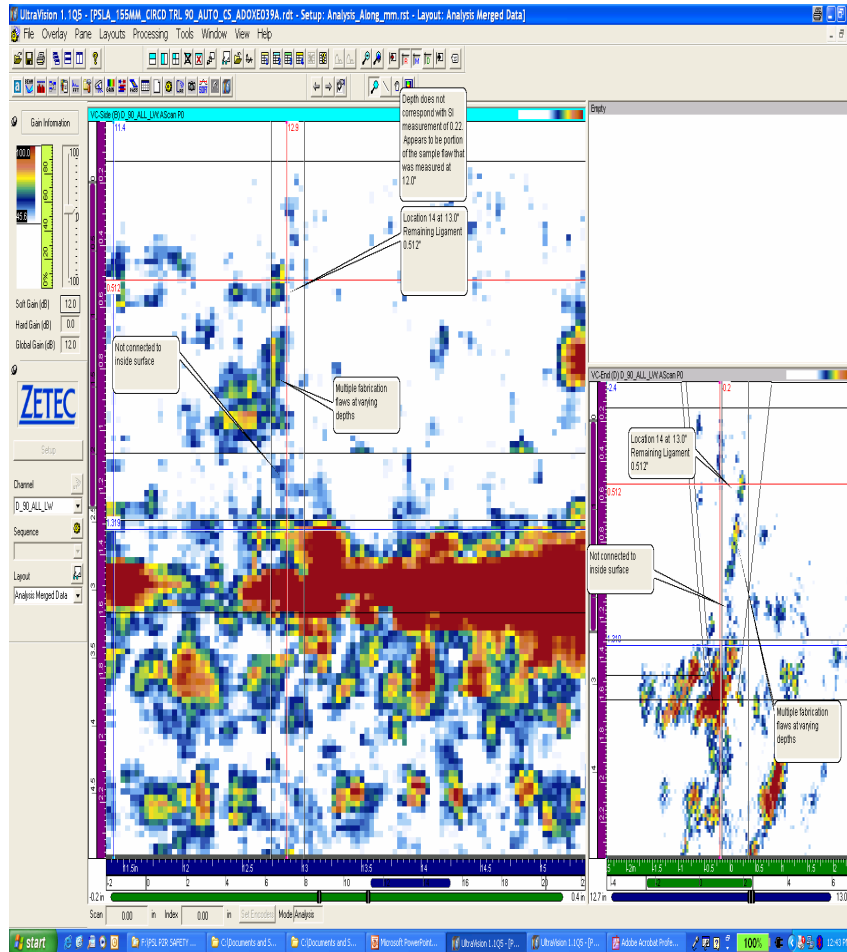
Indication through-wall depth at this location: 1.43 inches

Estimated remaining ligament above the indication: 0.27 inches

Angle used for measurement: 67 degrees



Location 14 Comparison at 13.0"



"A" Safety Circumferential Indication Profile Data

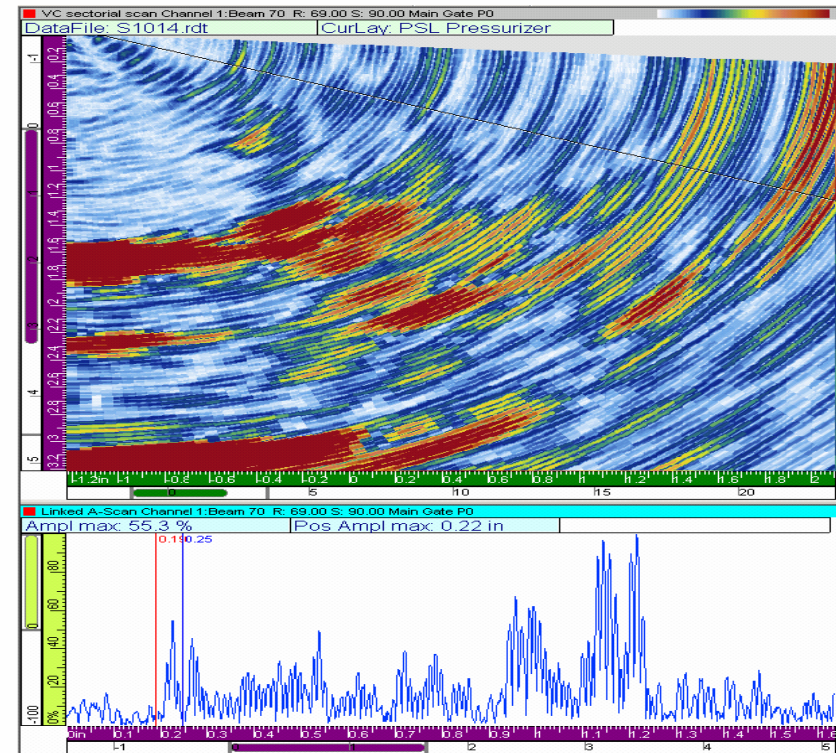
Location: 13 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

Indication through-wall depth at this location: 1.48 inches

Estimated remaining ligament above the indication: 0.22 inches

Angle used for measurement: 70 degrees



Location 15 Comparison at 14.0"

- Not detected circumferential Measurement may be off on manual report

"A" Safety Circumferential Indication Profile Data

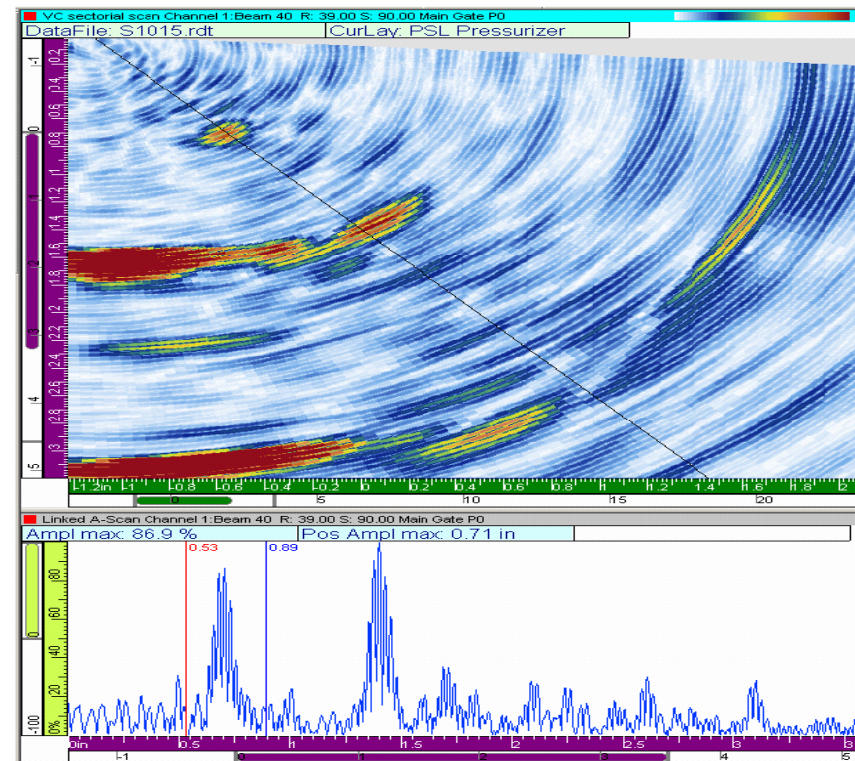
Location: 14 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

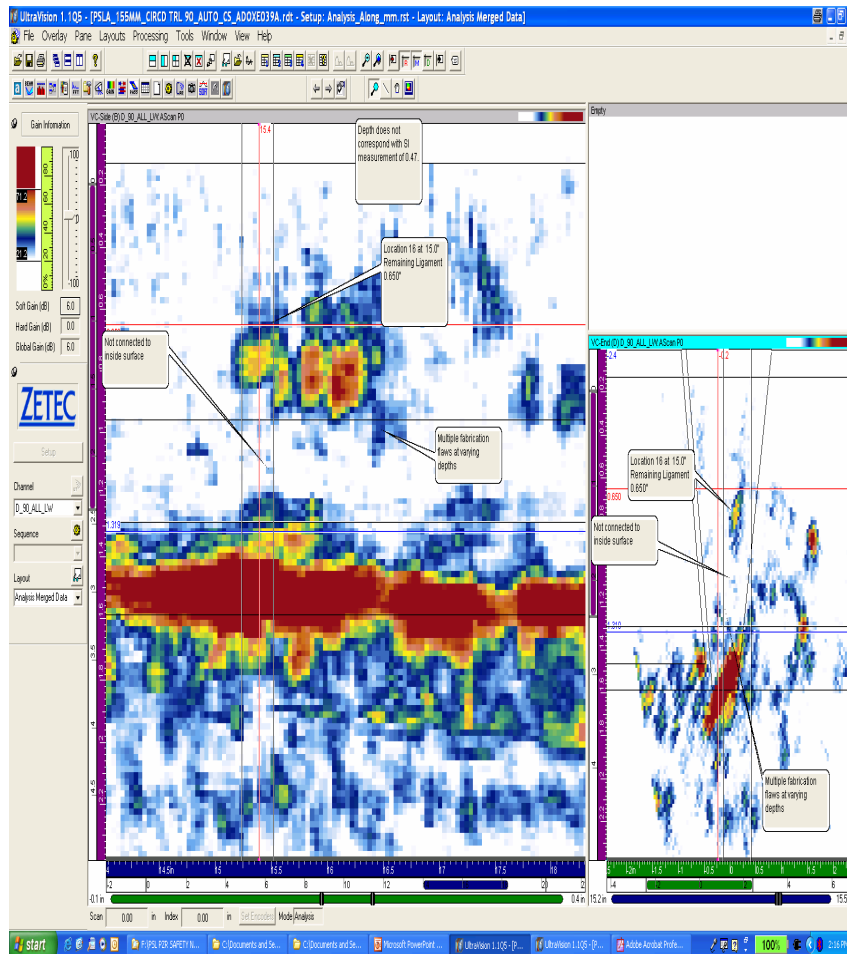
Indication through-wall depth at this location: 0.99 inches

Estimated remaining ligament above the indication: 0.71 inches

Angle used for measurement: 40 degrees



Location 16 Comparison at 15.0"



"A" Safety Circumferential Indication Profile Data

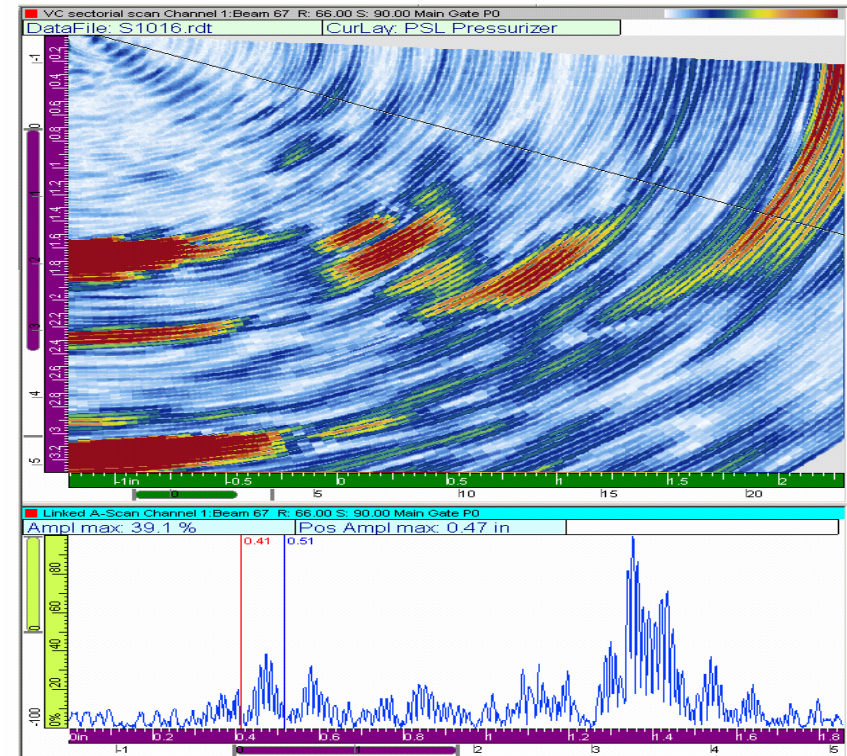
Location: 15 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

Indication through-wall depth at this location: 1.23 inches

Estimated remaining ligament above the indication: 0.47 inches

Angle used for measurement: 67 degrees

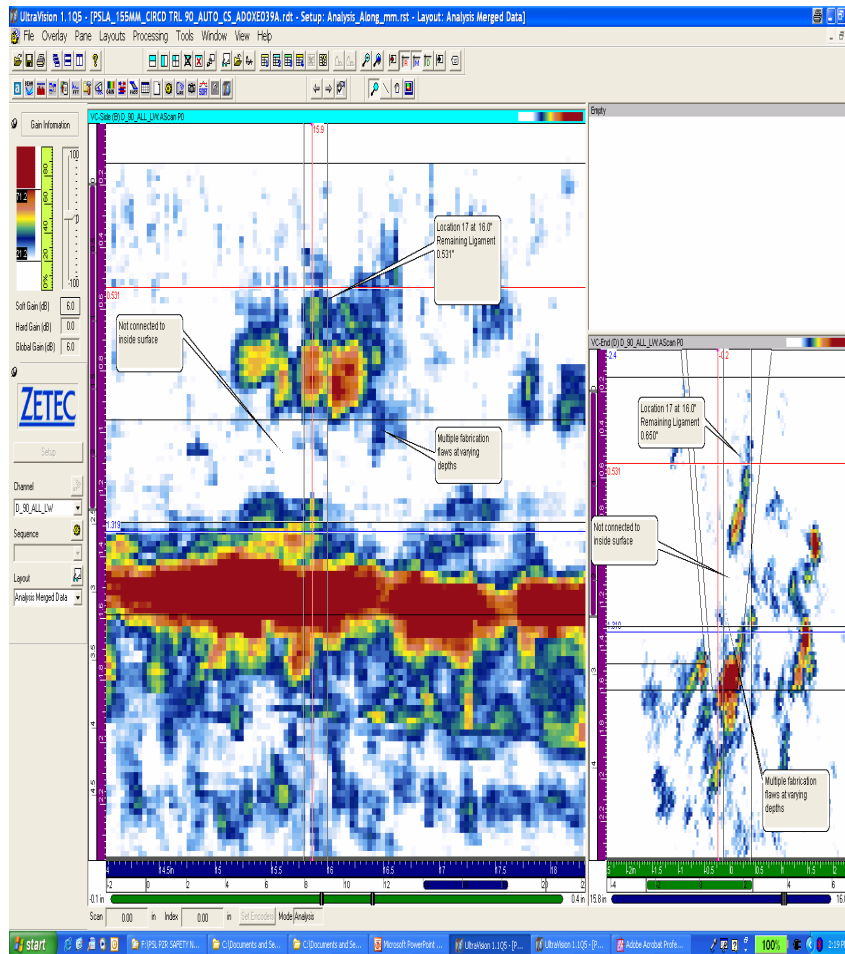


3/13/2008

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21

Location 17 Comparison at 16.0"



"A" Safety Circumferential Indication Profile Data

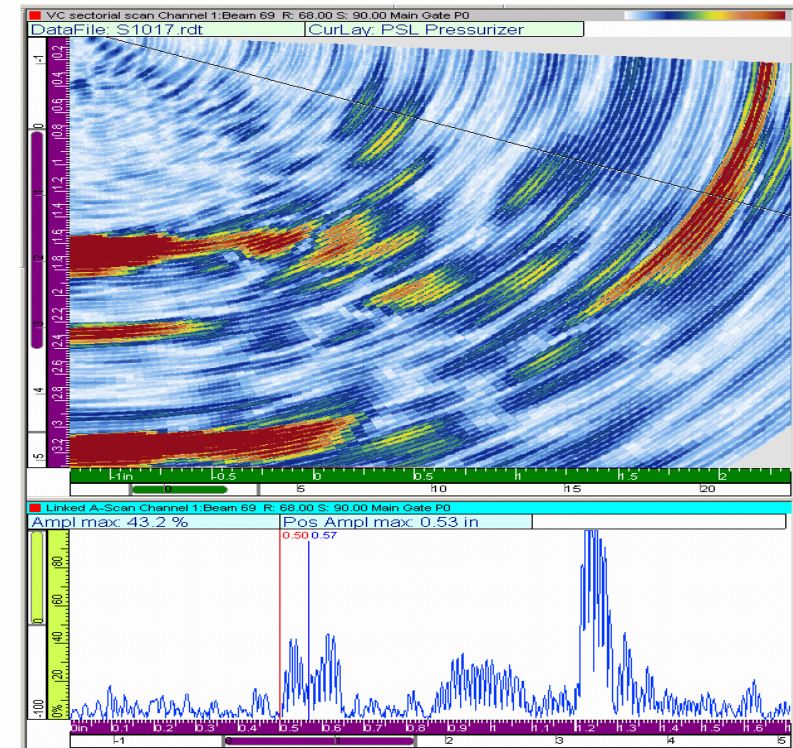
Location: 16 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

Indication through-wall depth at this location: 1.17 inches

Estimated remaining ligament above the indication: 0.53 inches

Angle used for measurement: 69 degrees



3/13/2008

DRAFT

22

Location 18 Comparison at 17.0"

- Unable to resolve indication in this area suspect circumferential position may be off. From data it appears to be an additional feature of same flaw measured at 16.0"

"A" Safety Circumferential Indication Profile Data

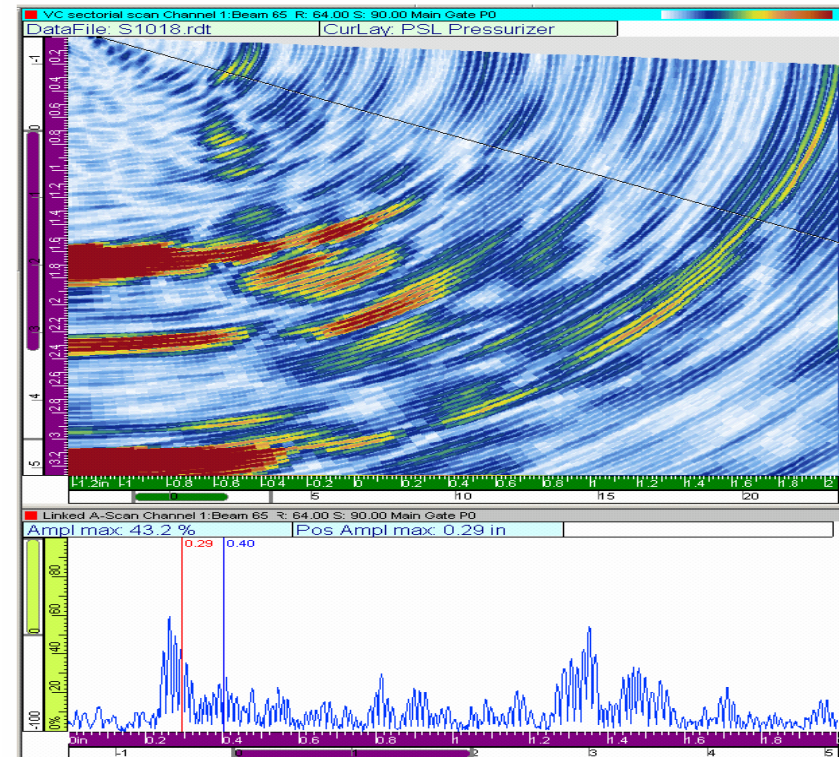
Location: 17 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

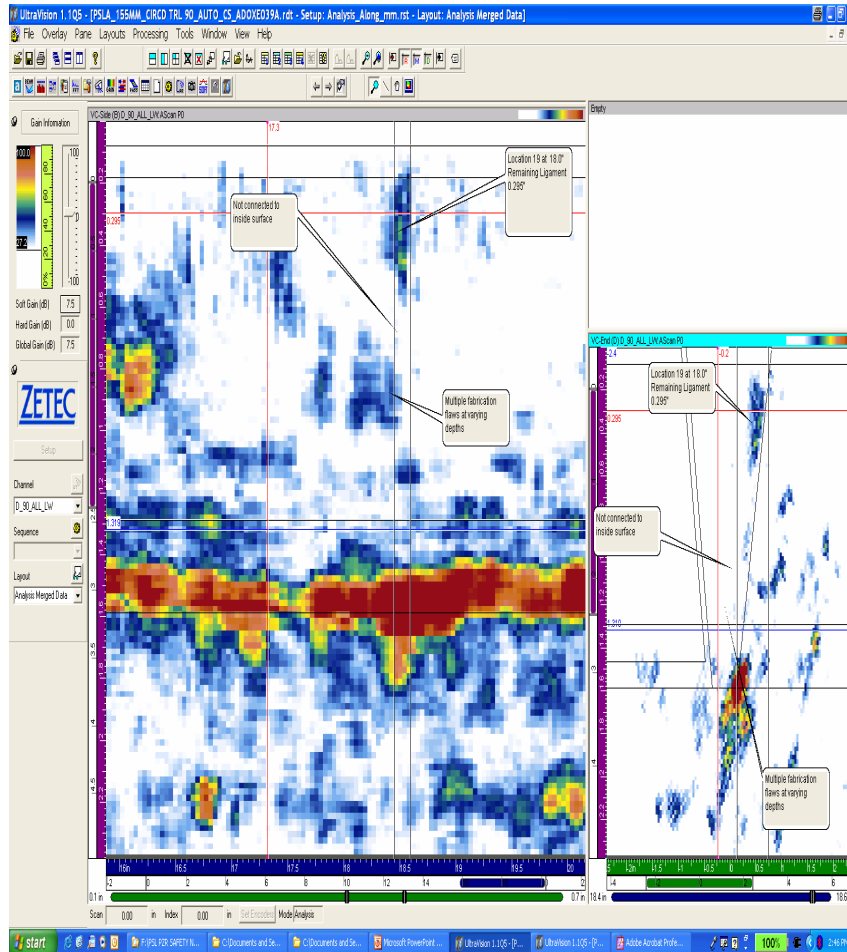
Indication through-wall depth at this location: 1.41 inches

Estimated remaining ligament above the indication: 0.29 inches

Angle used for measurement: 65 degrees



Location 19 Comparison at 18.0"



"A" Safety Circumferential Indication Profile Data

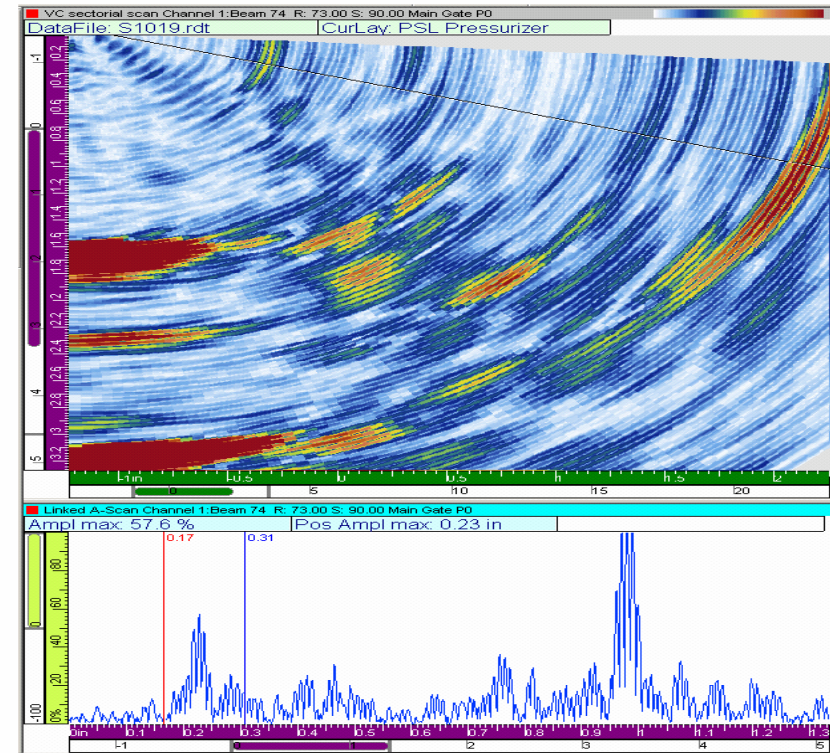
Location: 18 inches clockwise from "0" stamp

Part Thickness used for calculation: 1.7 inches

Indication through-wall depth at this location: 1.47 inches

Estimated remaining ligament above the indication: 0.23 inches

Angle used for measurement: 74 degrees



Summary

- Tip signals reported by Structural Integrity appear to be associated with embedded stacked fabrication flaws
- None of the flaws appear to be connected to the inside surface and to each other
- Flaws in nozzles B and C have same characteristics as the flaws in Nozzle A