

BETA LAB No.M10198- LS3 TOP	TESORO REFINING AND MARKETING COMPANY ANACORTES REFINERY 10200 W. MARCH POINT ROAD T91WA4428 ANACORTES, WA 98221	CUSTOMER P.O. No.: 4501667904
PART: 6600-E HEAT EXCHANGER LS 3 TOP PART 15		DATE: SEPTEMBER 20, 2010
PAGE 14 OF 53		

LABORATORY REPORT-LS3 TOP

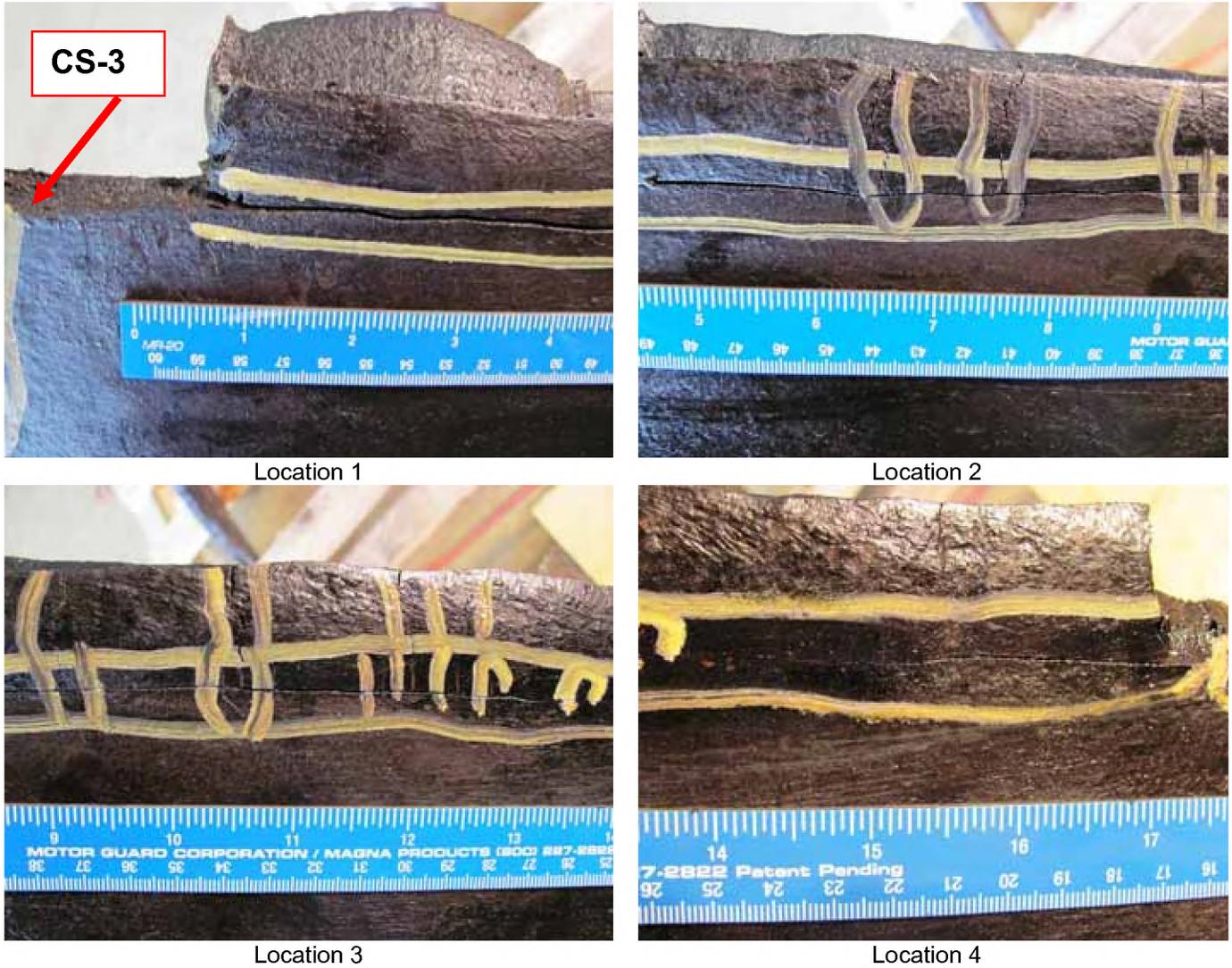


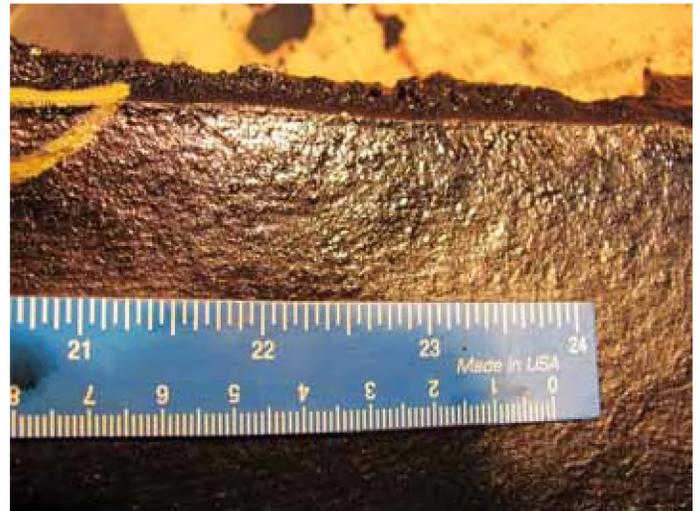
Figure 9. Magnetic Particle Inspection. Indications circled (fracture on top and looking at ID surface)

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PART: 6600-E HEAT EXCHANGER LS 3 TOP PART 15		DATE: SEPTEMBER 20, 2010
PAGE 15 OF 53		

LABORATORY REPORT-LS3 TOP



Location 5



Location 6



Location 7



Location 8

Figure 10. Magnetic Particle inspection. Indications circled (fracture on top and looking at ID surface)

BETA LAB No.M10198- LS3 TOP	TESORO REFINING AND MARKETING COMPANY ANACORTES REFINERY 10200 W. MARCH POINT ROAD T91WA4428 ANACORTES, WA 98221	CUSTOMER P.O. No.: 4501667904
PART: 6600-E HEAT EXCHANGER LS 3 TOP PART 15		DATE: SEPTEMBER 20, 2010
PAGE 16 OF 53		

LABORATORY REPORT-LS3 TOP



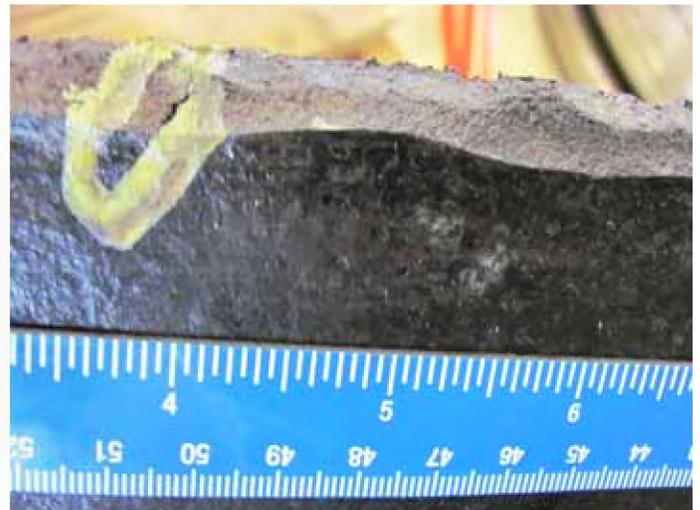
Location 9



Location 10



Location 11



Location 12

Figure 11. Magnetic Particle inspection. Indications circled (fracture on top and looking at ID surface)

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PART: 6600-E HEAT EXCHANGER LS 3 TOP PART 15		DATE: SEPTEMBER 20, 2010
PAGE 17 OF 53		

LABORATORY REPORT-LS3 TOP



Location 13



Location 14



Location 15



Location 16

Figure 12. Magnetic Particle inspection. Indications circled (fracture on top and looking at ID surface)

BETA LAB No.M10198- LS3 TOP	TESORO REFINING AND MARKETING COMPANY ANACORTES REFINERY 10200 W. MARCH POINT ROAD T91WA4428 ANACORTES, WA 98221	CUSTOMER P.O. No.: 4501667904
PART: 6600-E HEAT EXCHANGER LS 3 TOP PART 15		DATE: SEPTEMBER 20, 2010
PAGE 18 OF 53		

LABORATORY REPORT-LS3 TOP



Location 17



Location 18



Location 19

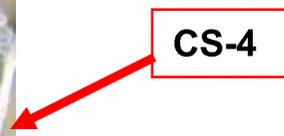
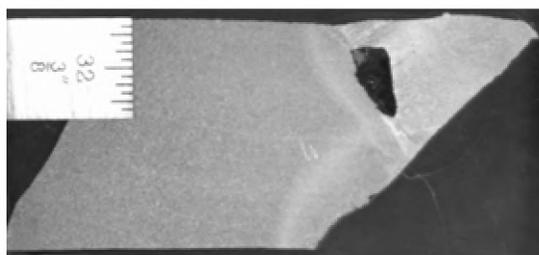


Figure 13. Magnetic Particle inspection. Indications circled (fracture on top and looking at ID surface)

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PART: 6600-E HEAT EXCHANGER LS 3 TOP PART 15		DATE: SEPTEMBER 20, 2010
PAGE 19 OF 53		

LABORATORY REPORT-LS3 TOP

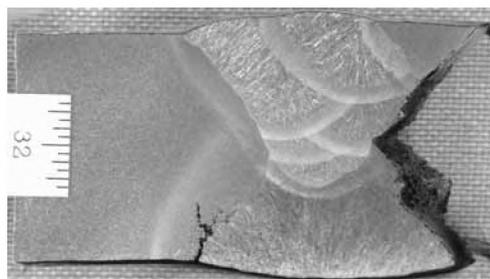
MACROS OF THE MOUNTS ANALYSED IN THIS REPORT



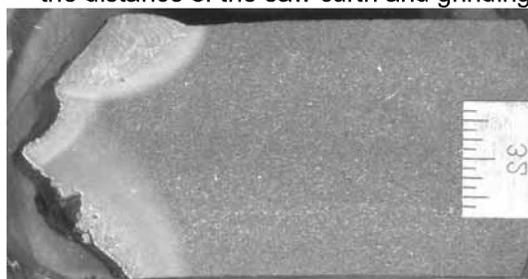
15 M-3



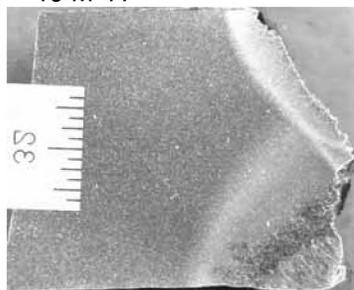
14 M-3- note fracture changed location in the distance of the saw curth and grinding



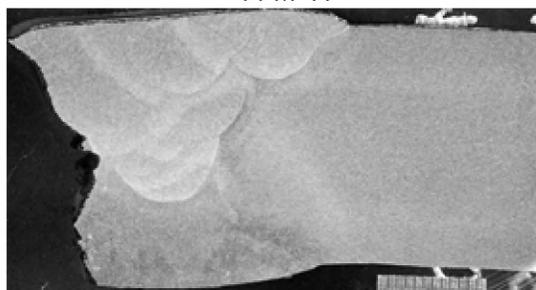
15 M-4T



14 M-4T



15 T0



14 T0

MACROS OF THE MOUNTS ANALYZED AND REPORTED IN M10198-LS3 BOTTOM FINDINGS JULY 30, 2010

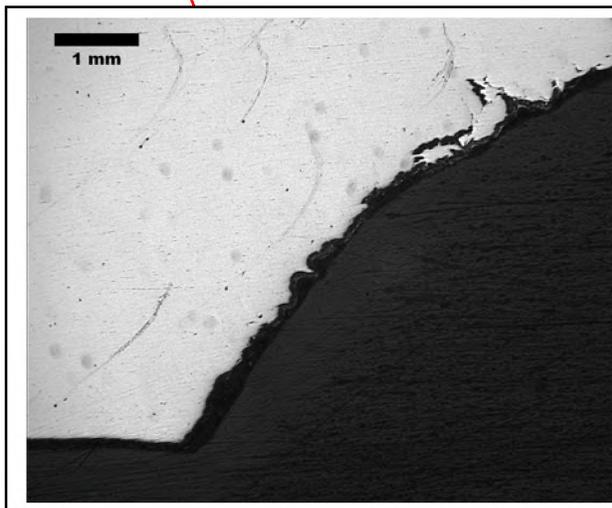
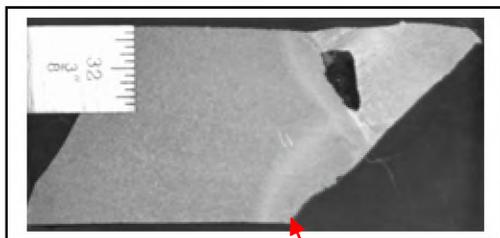
Figure 14. Macro photographs of the samples evaluated in this report with matching samples. In these photographs O.D. is on the top.

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PART: 6600-E HEAT EXCHANGER LS 3 TOP PART 15		DATE: SEPTEMBER 20, 2010
PAGE 20 OF 53		

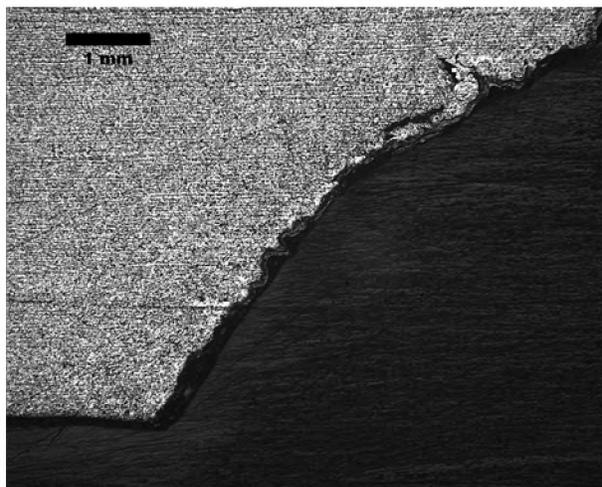
LABORATORY REPORT-LS3 TOP

MOUNT 15 M-3

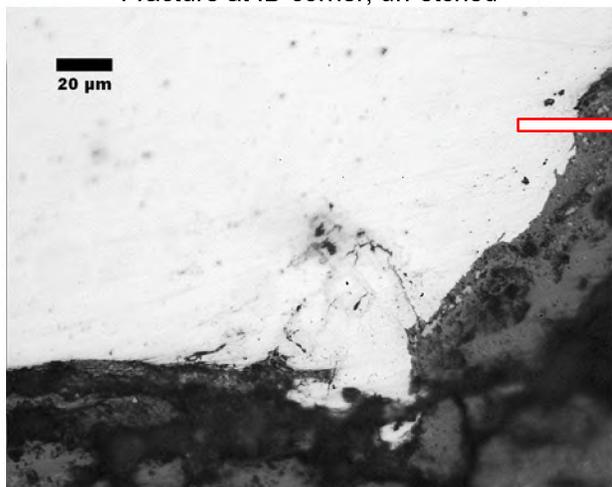
ID IS ON THE BOTTOM



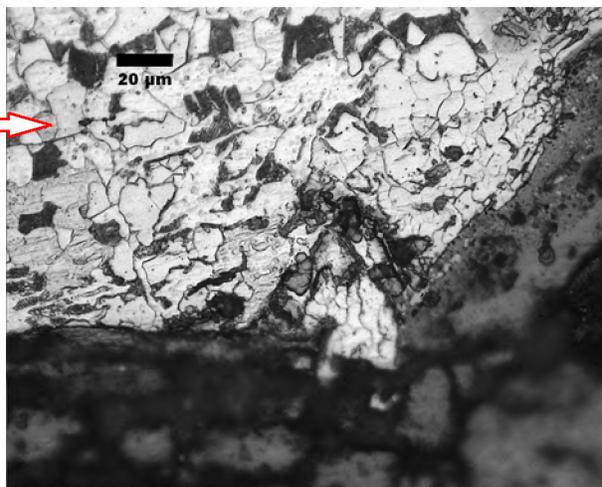
Fracture at ID corner, un-etched



Same as at left, etched



Same as above at higher magnification

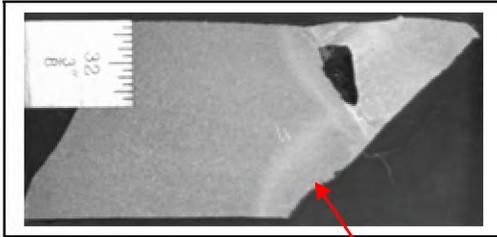


Same as at left, etched

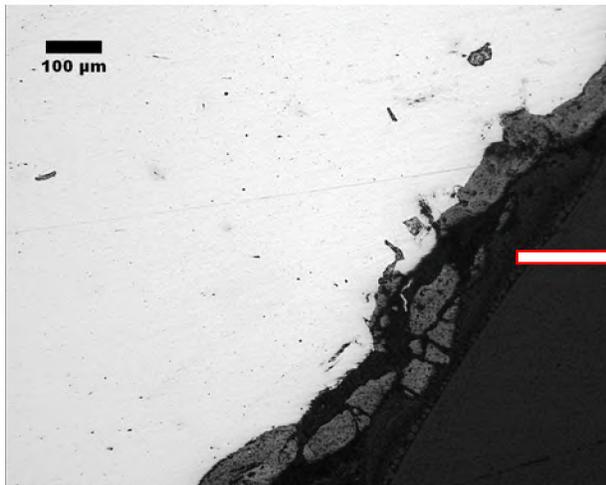
Figure 15

BETA LAB No.M10198- LS3 TOP	TESORO REFINING AND MARKETING COMPANY ANACORTES REFINERY 10200 W. MARCH POINT ROAD T91WA4428 ANACORTES, WA 98221	CUSTOMER P.O. No.: 4501667904
PART: 6600-E HEAT EXCHANGER LS 3 TOP PART 15		DATE: SEPTEMBER 20, 2010
PAGE 21 OF 53		

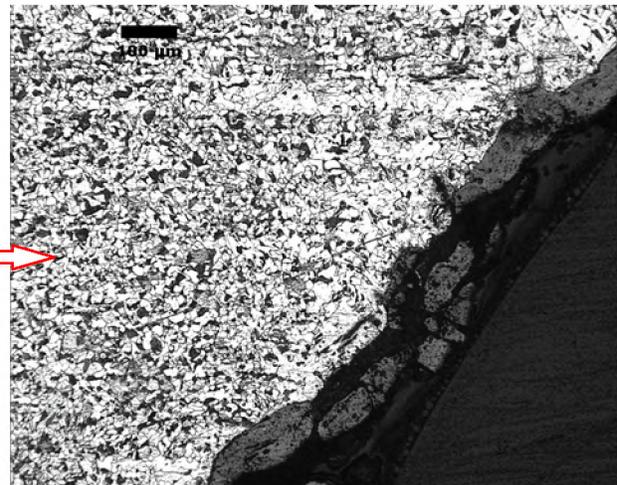
LABORATORY REPORT-LS3 TOP



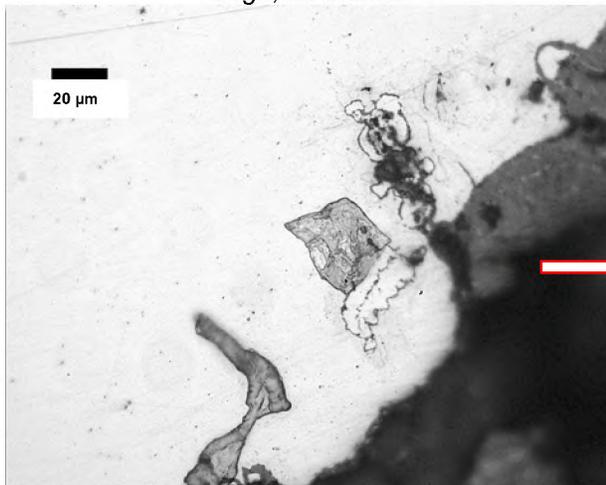
MOUNT 15 M-3
ID IS ON THE BOTTOM



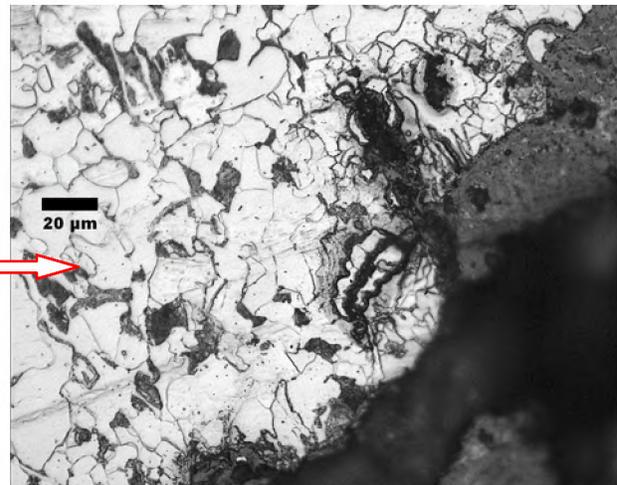
One field up from the ID corner along the fracture edge, un-etched



Same as at left, etched



Same as above at higher magnification, un-etched

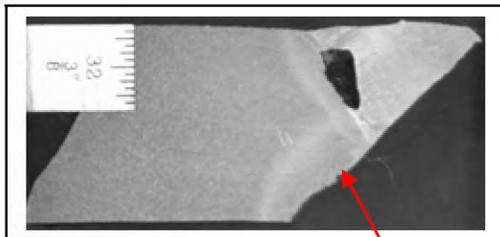


Same as at left, etched

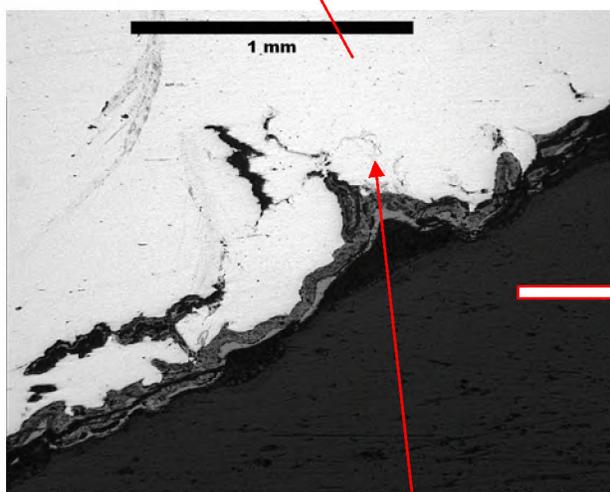
Figure 16

BETA LAB No.M10198- LS3 TOP	TESORO REFINING AND MARKETING COMPANY ANACORTES REFINERY 10200 W. MARCH POINT ROAD T91WA4428 ANACORTES, WA 98221	CUSTOMER P.O. No.: 4501667904
PART: 6600-E HEAT EXCHANGER LS 3 TOP PART 15		DATE: SEPTEMBER 20, 2010
PAGE 22 OF 53		

LABORATORY REPORT-LS3 TOP



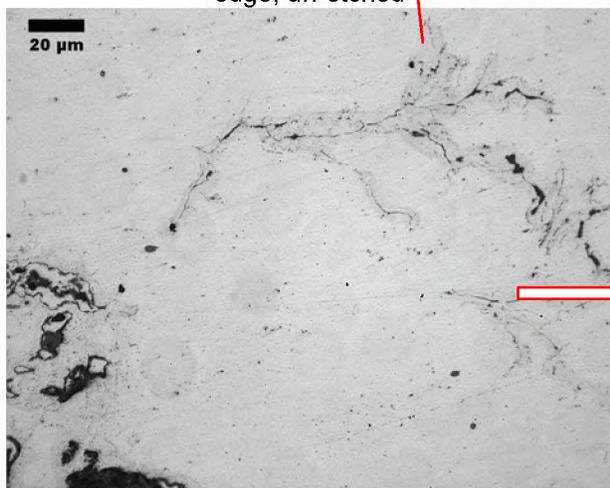
MOUNT 15 M-3
ID IS ON THE BOTTOM



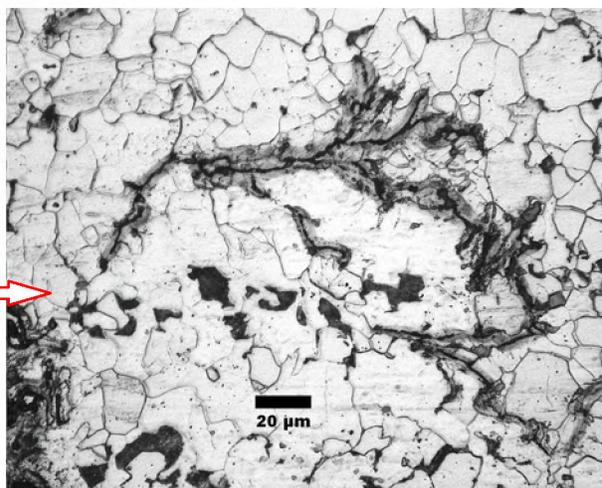
Two fields up from the ID corner along the fracture edge, un-etched



Same as at left, etched



Same as above at higher magnification, un-etched

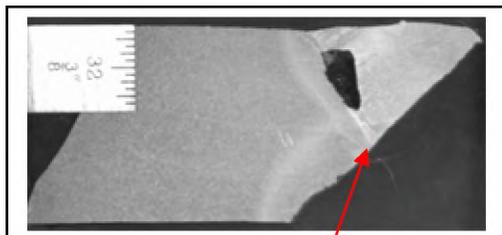


Same as at left, etched

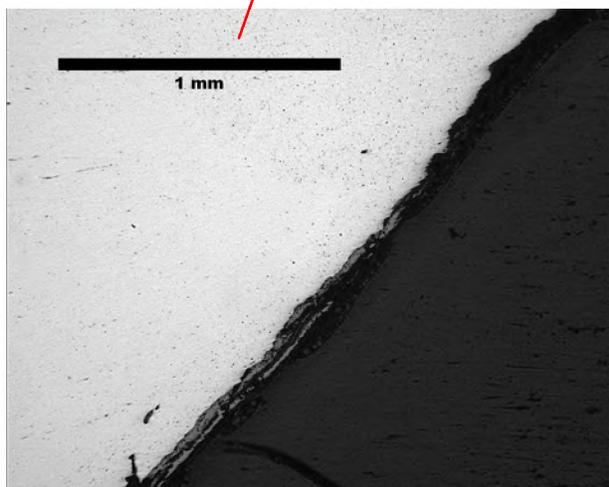
Figure 17

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PART: 6600-E HEAT EXCHANGER LS 3 TOP PART 15		DATE: SEPTEMBER 20, 2010
PAGE 23 OF 53		

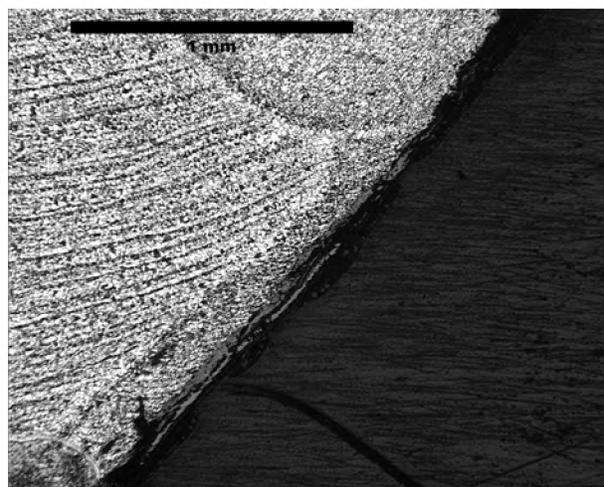
LABORATORY REPORT-LS3 TOP



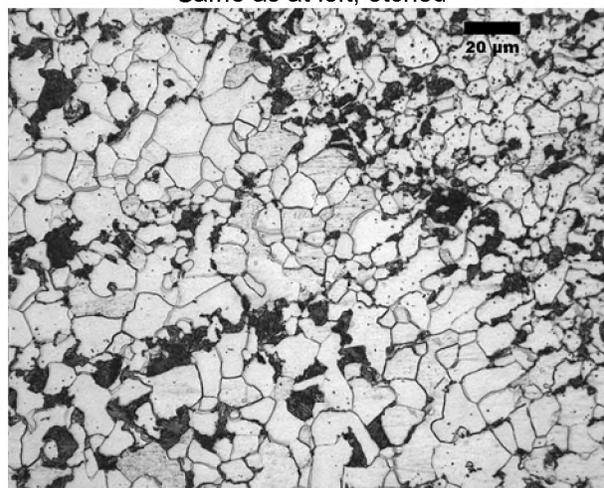
MOUNT 15 M-3
ID IS ON THE BOTTOM



Area at HAZ and Weld Metal, un-etched



Same as at left, etched

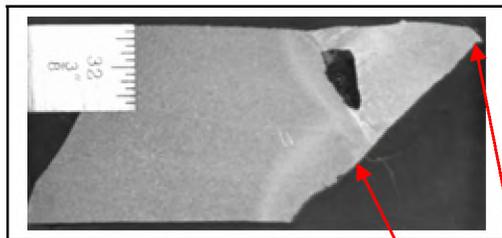


Area at HAZ-WM from the photo above at higher magnification, etched

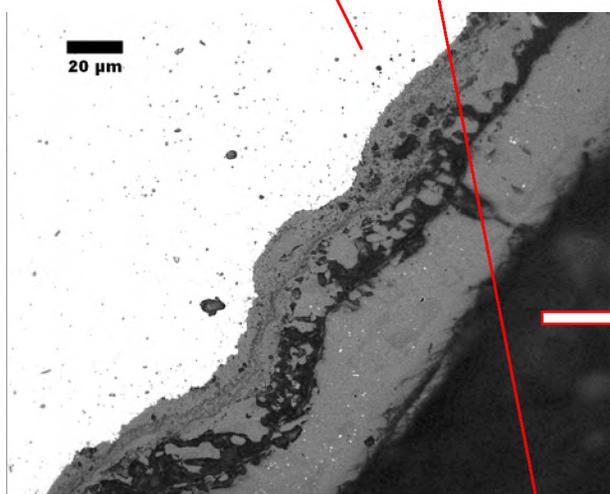
Figure 18

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PART: 6600-E HEAT EXCHANGER LS 3 TOP PART 15		DATE: SEPTEMBER 20, 2010
PAGE 24 OF 53		

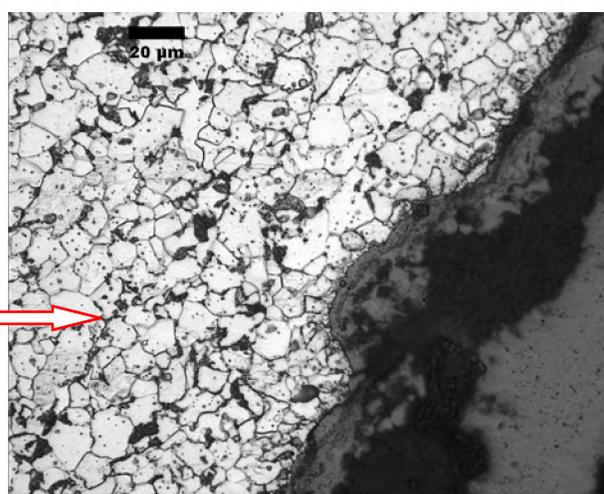
LABORATORY REPORT-LS3 TOP



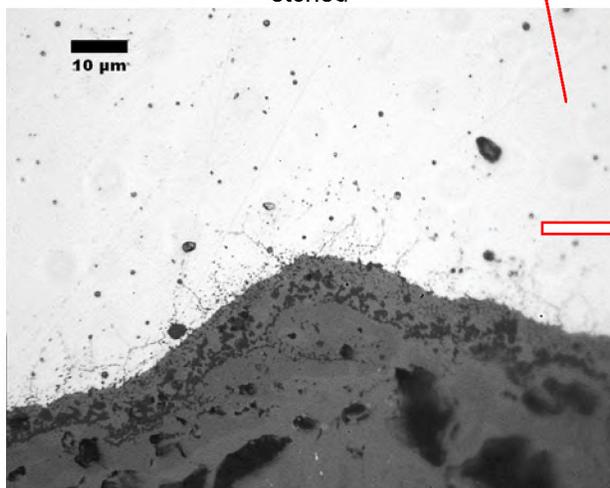
MOUNT 15 M-3
ID IS ON THE BOTTOM



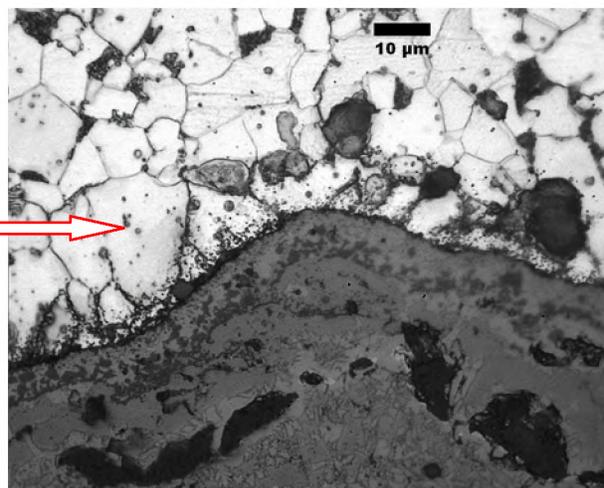
Approximately mid-wall along the fracture edge, un-etched



Same as at left, etched



Area at fracture edge near OD, un-etched



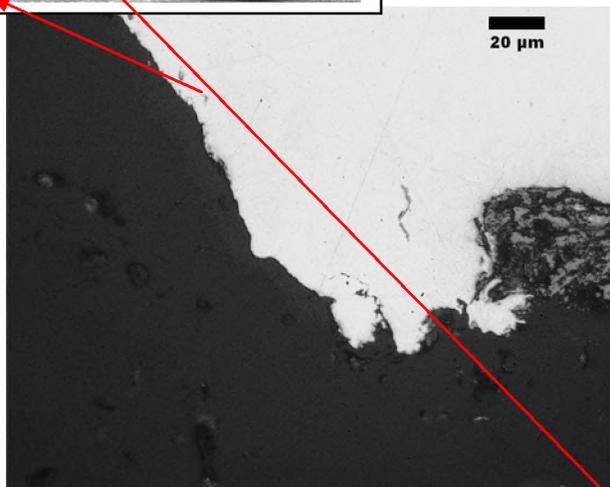
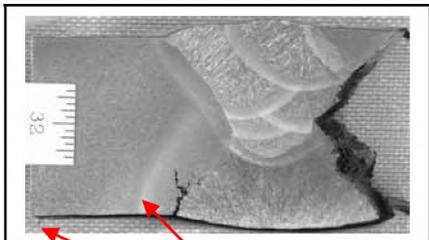
Same as at left, etched

Figure 19

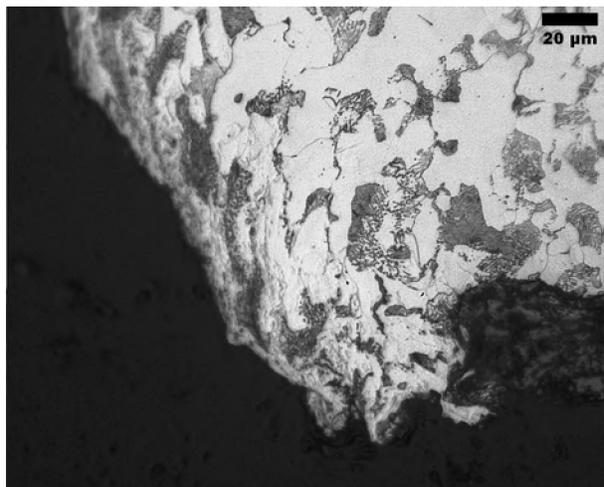
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PAGE 25 OF 53		

LABORATORY REPORT-LS3 TOP

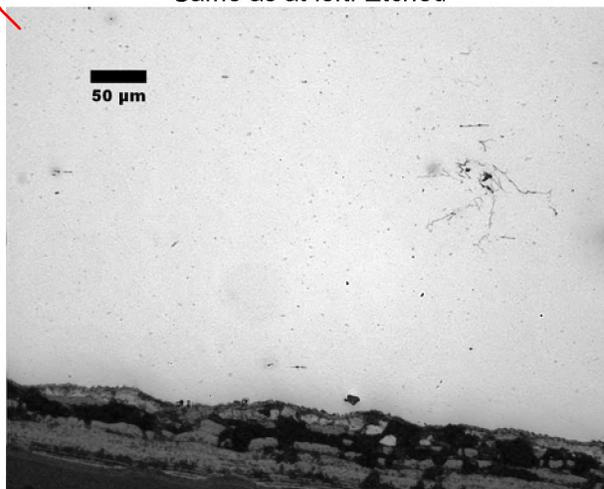
MOUNT 15 M-4T
ID IS ON THE BOTTOM



Base Metal at ID corner at the cut. Un-etched



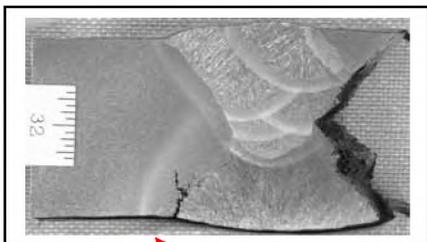
Same as at left. Etched



Area approximately 3 mm from the crack

UPPER ARROW OFF
Figure 20

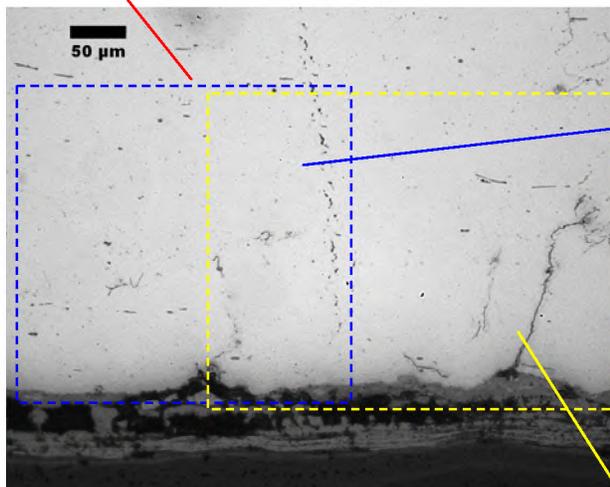
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PART: 6600-E HEAT EXCHANGER LS 3 TOP PART 15		DATE: SEPTEMBER 20, 2010
PAGE 26 OF 53		



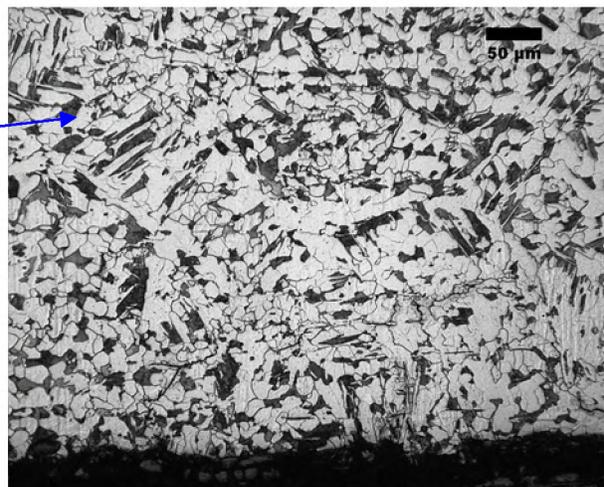
LABORATORY REPORT-LS3 TOP

MOUNT 15 M-4T

ID IS ON THE BOTTOM



Area near the crack, un-etched



Area from the micro at left, etched



Area from the micro at left, etched

Figure 21