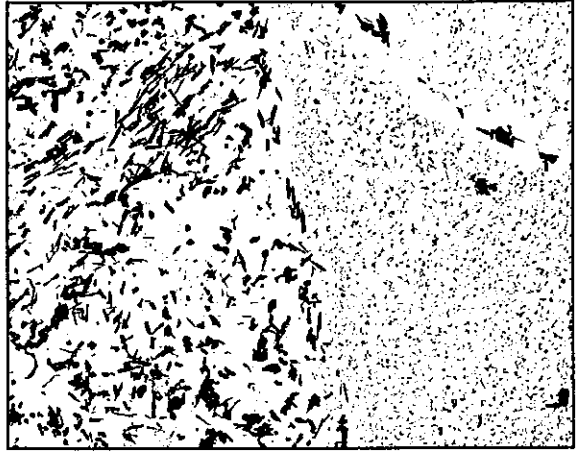
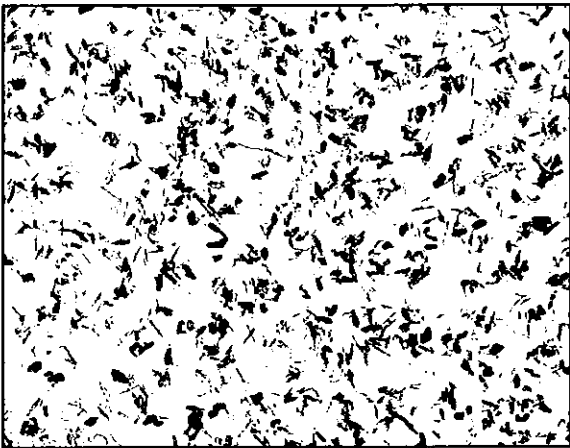


5 μm



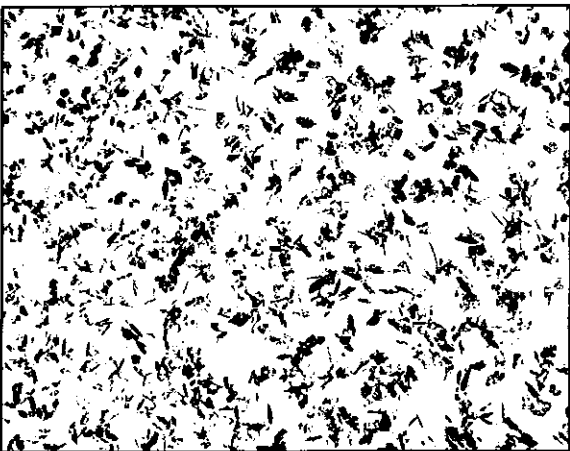
5 μm



1 μm



1 μm

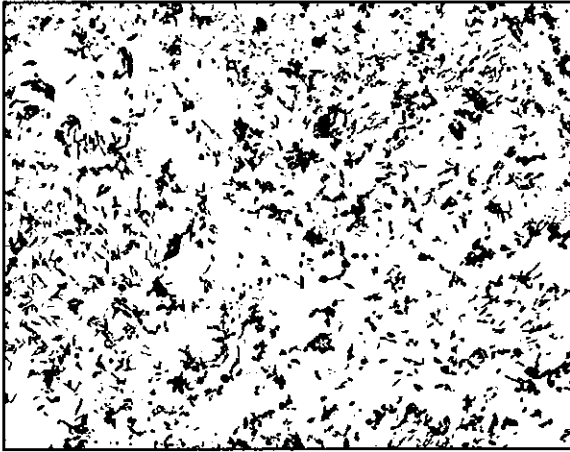


1 μm



1 μm

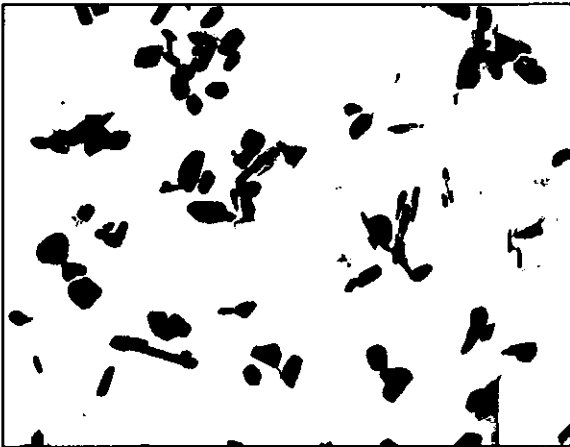
Photo II-7-11 Precipitates by TEM (Transmission electron microscope) observation
RH Outlet Header (Circumferential weld at left side : Base metal)



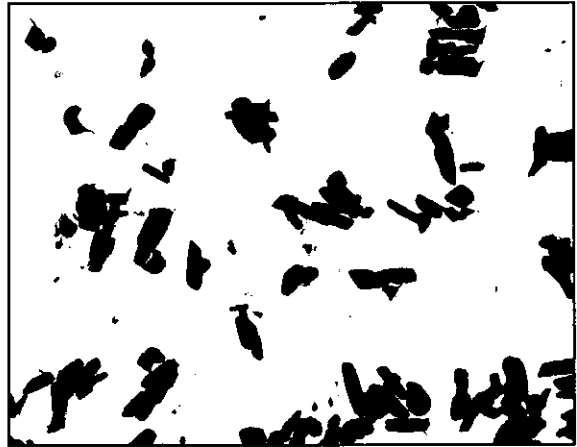
5 μm



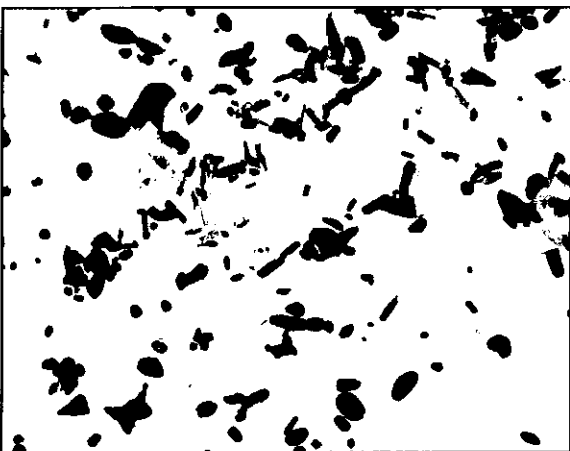
5 μm



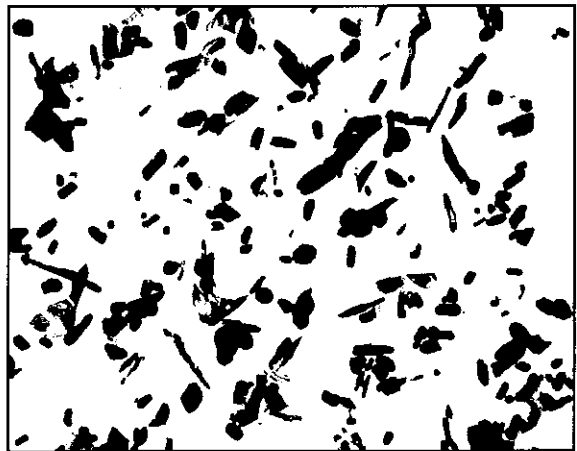
1 μm



1 μm



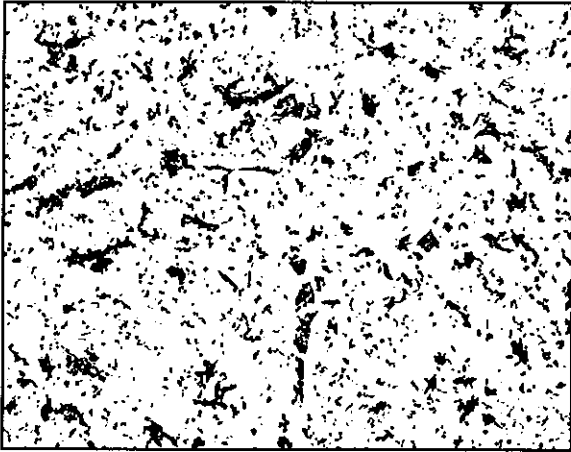
1 μm



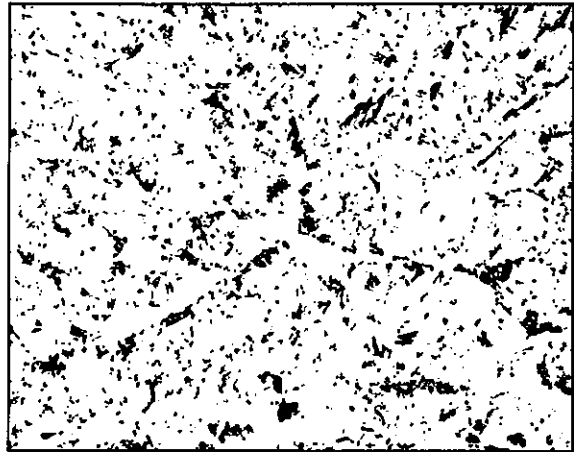
1 μm

Photo II-7-12 Precipitates by TEM (Transmission electron microscope) observation
RH Outlet Header (Circumferential weld at left side : Fine grain HAZ)

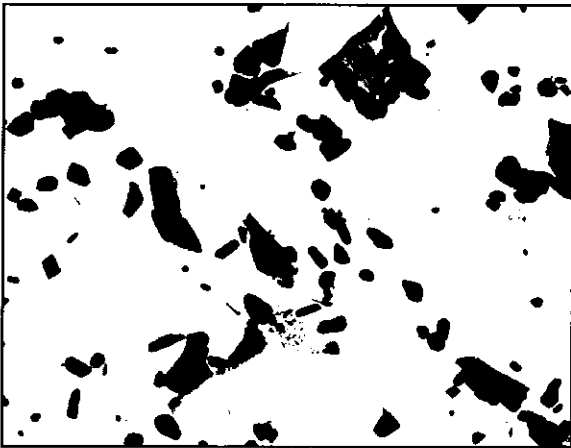
598



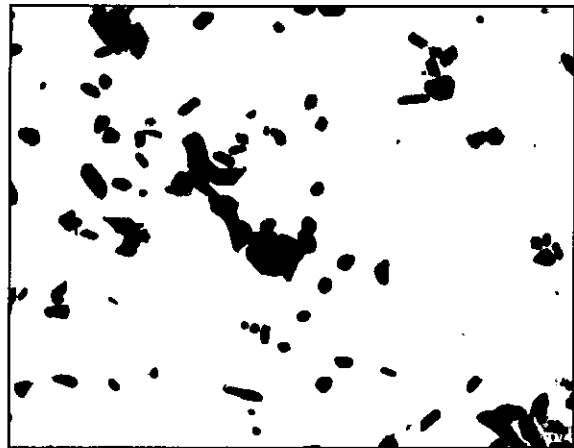
5 μm



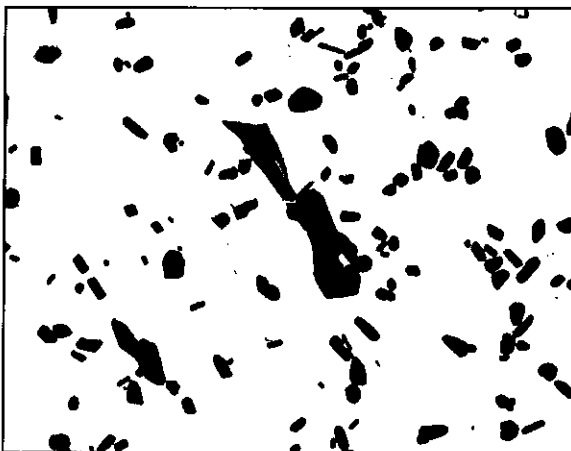
5 μm



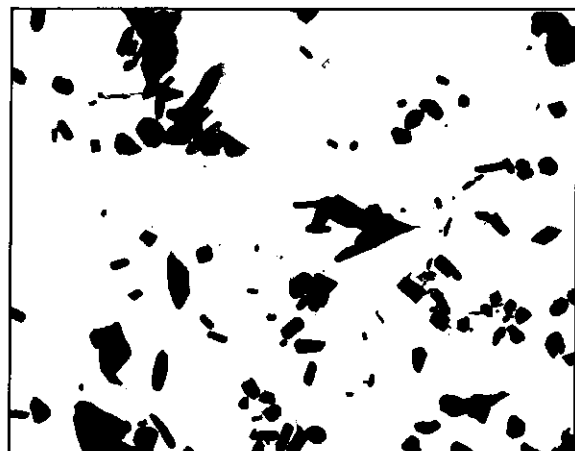
1 μm



1 μm



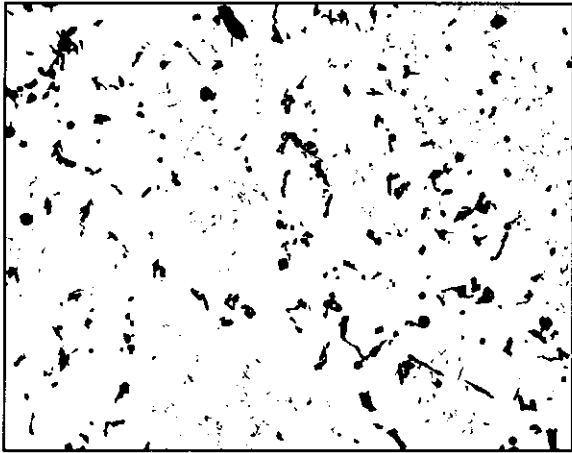
1 μm



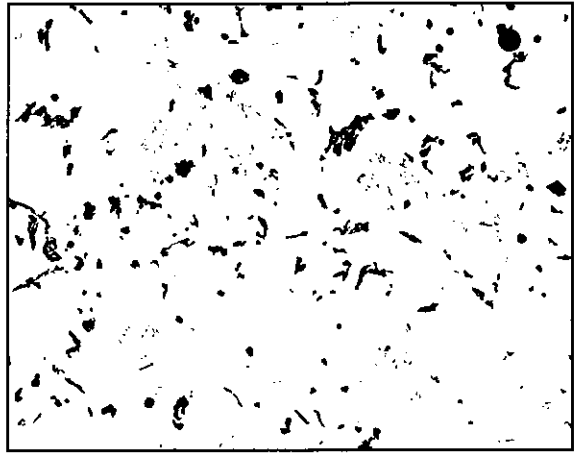
1 μm

Photo II-7-13 Precipitates by TEM (Transmission electron microscope) observation
RH Outlet Header (Circumferential weld at left side: Coarse grain HAZ)

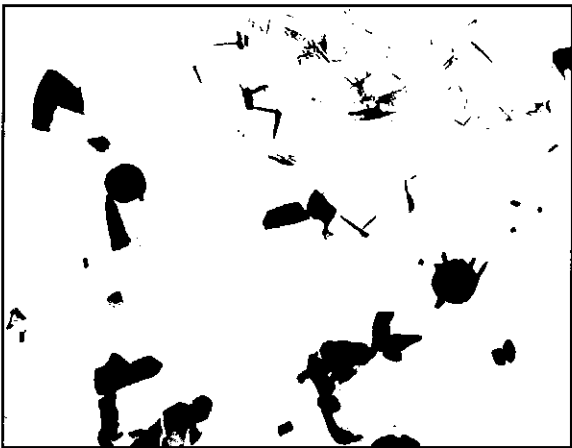
399



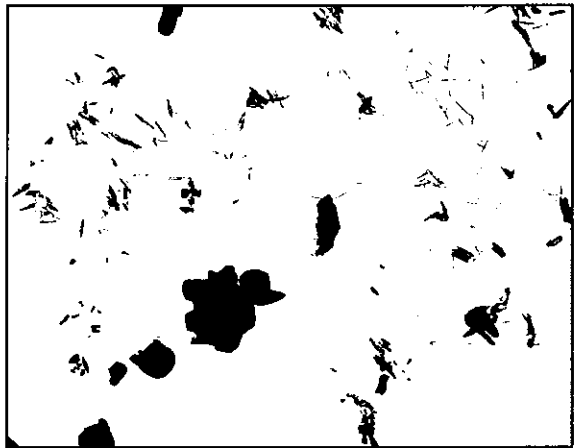
5 μm



5 μm



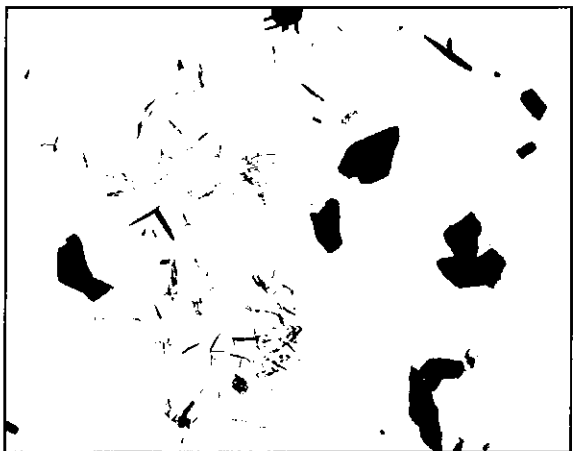
1 μm



1 μm



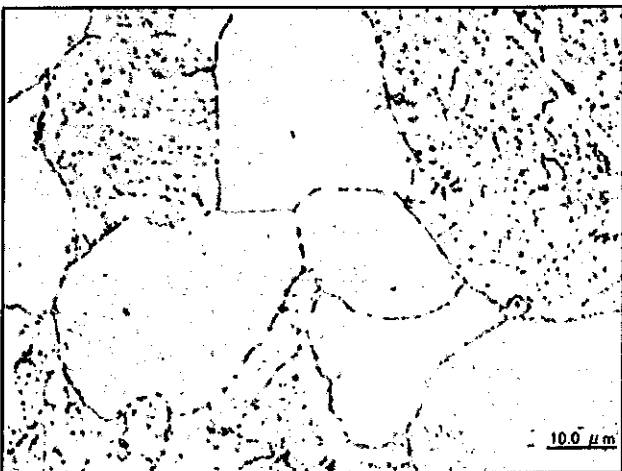
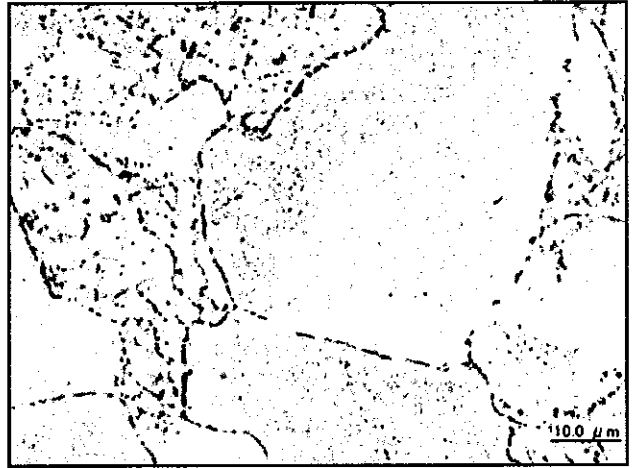
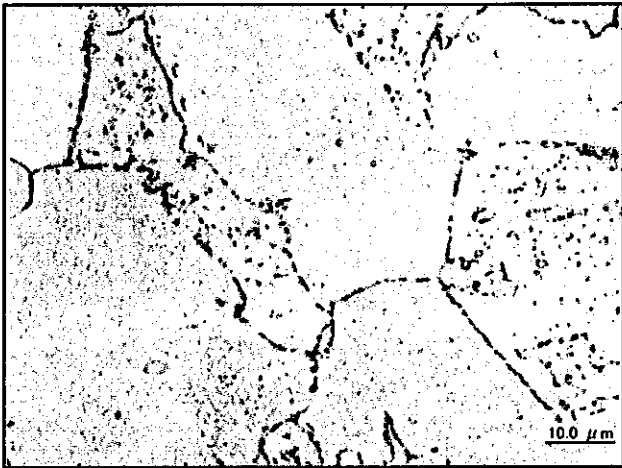
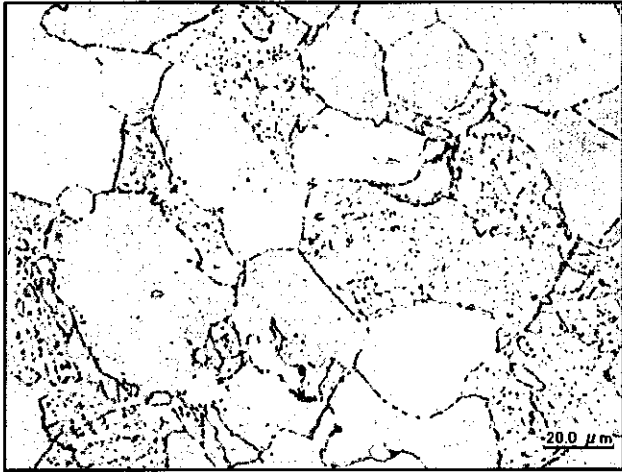
1 μm



1 μm

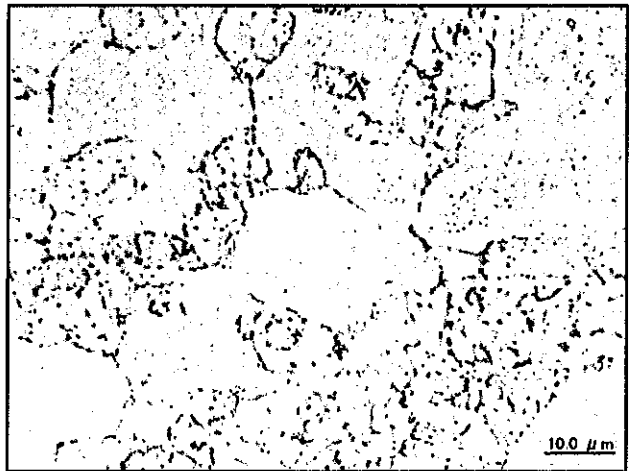
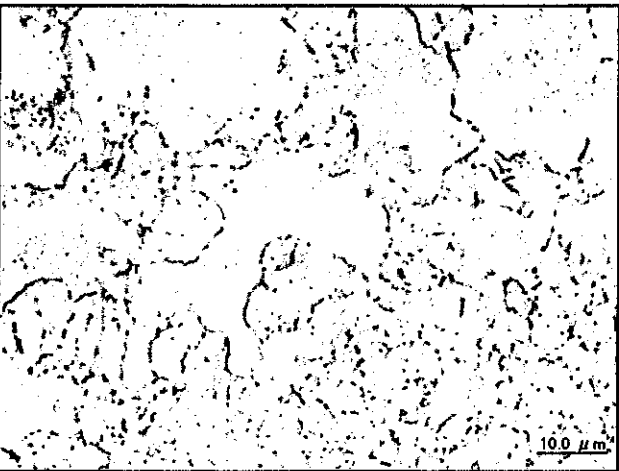
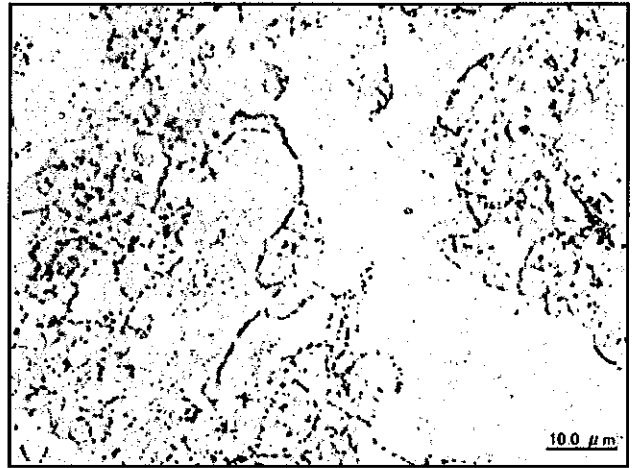
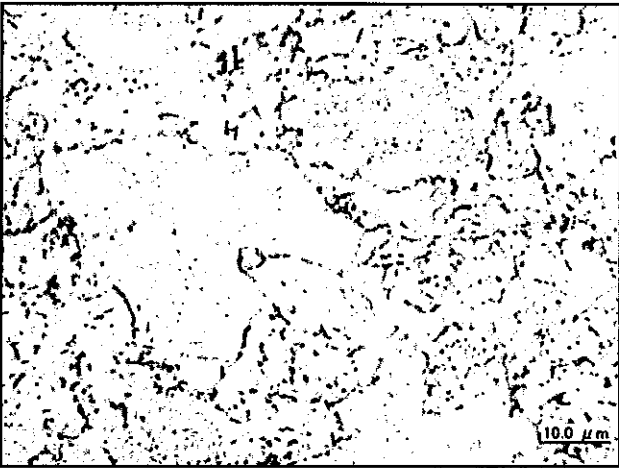
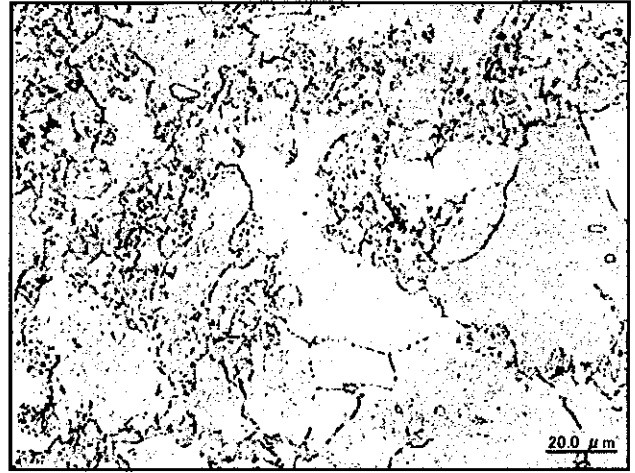
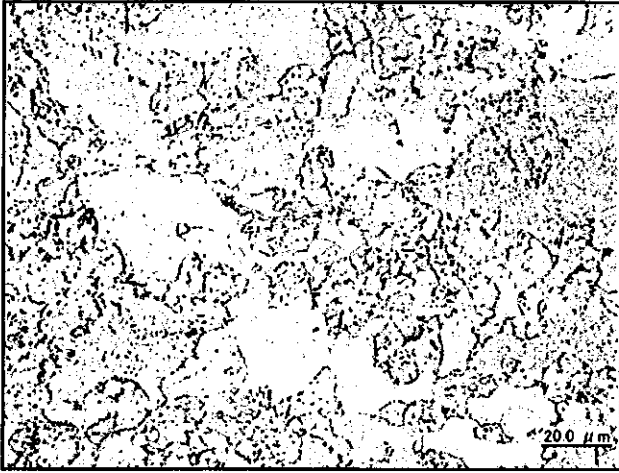
450

Photo II-7-14 Precipitates by TEM (Transmission electron microscope) observation
RH Outlet Header (Circumferential weld at left side : Weld metal)



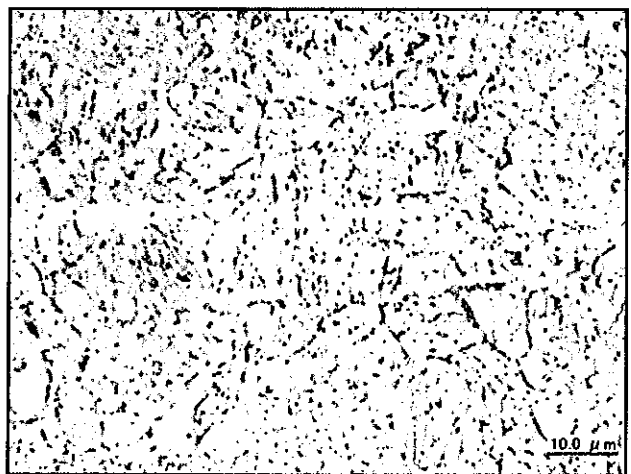
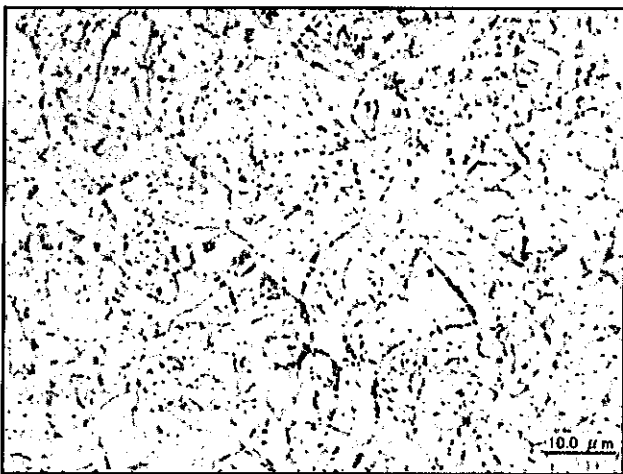
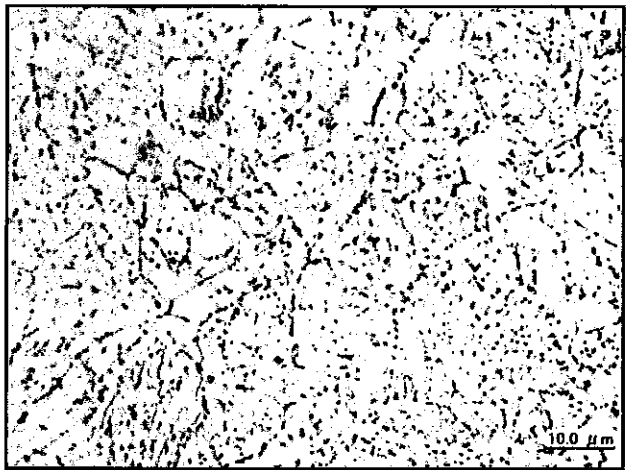
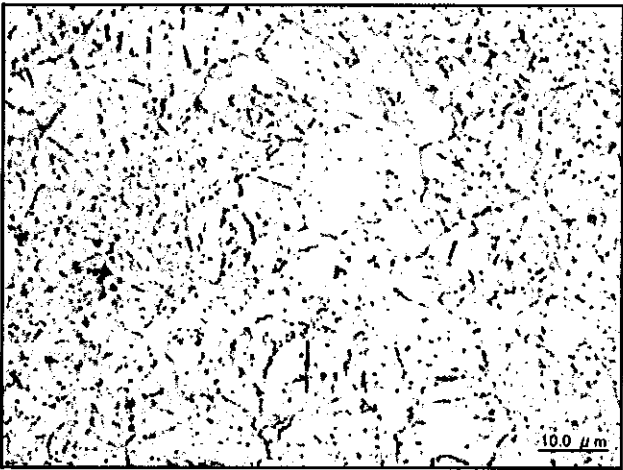
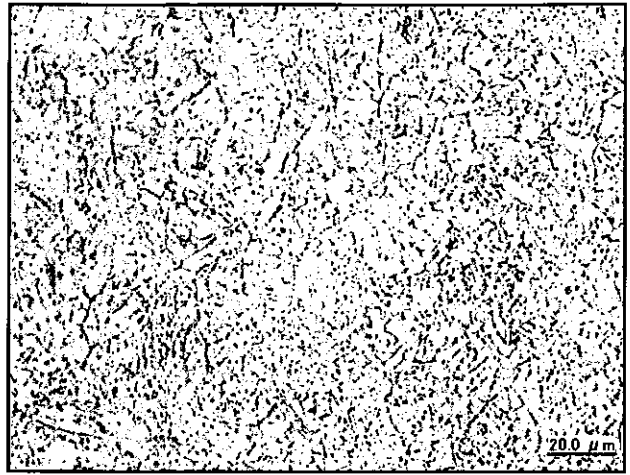
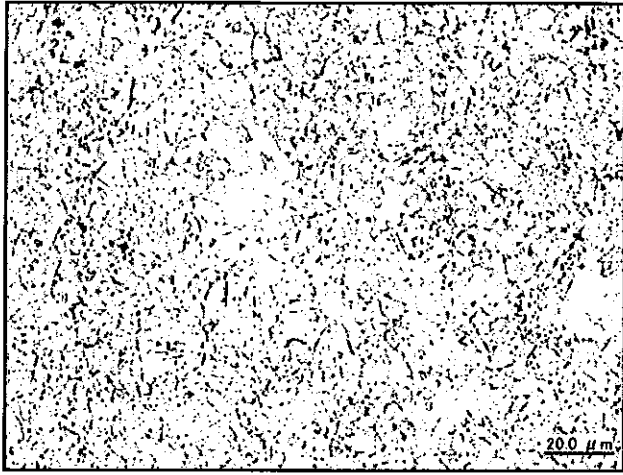
401

Photo II-8-1 Microstructure observation
RH Outlet Header (Circumferential weld at right side, top : Base metal)



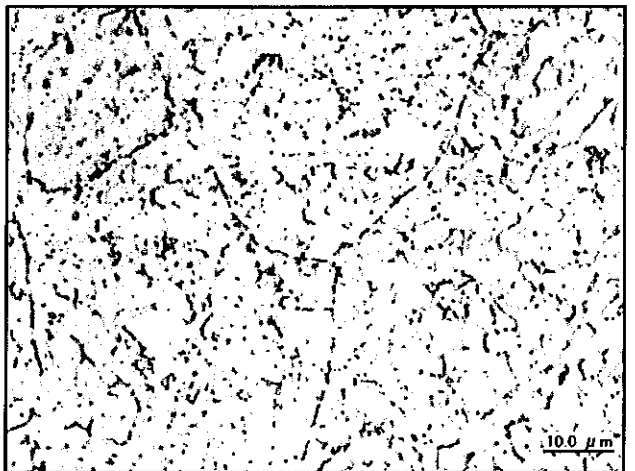
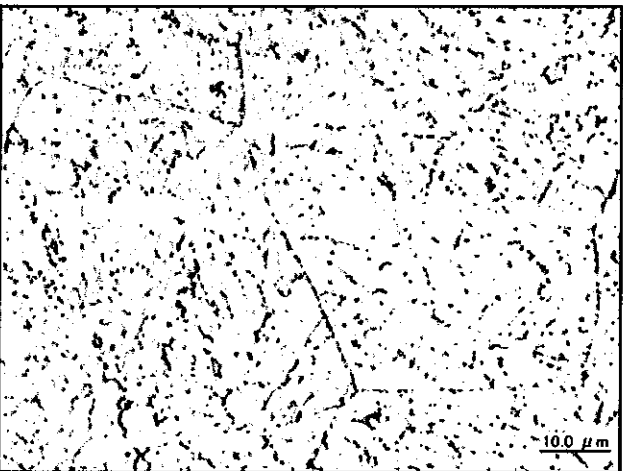
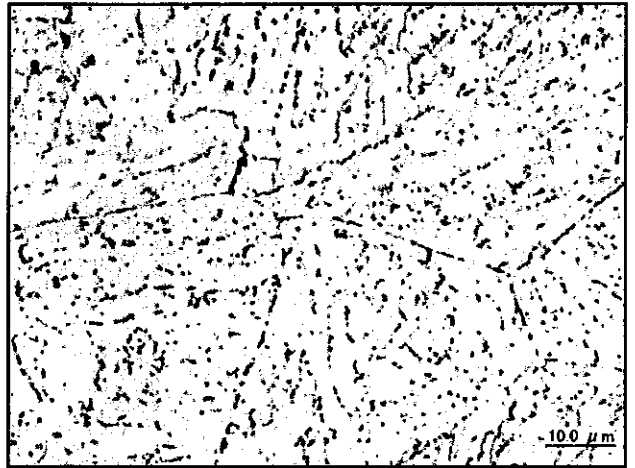
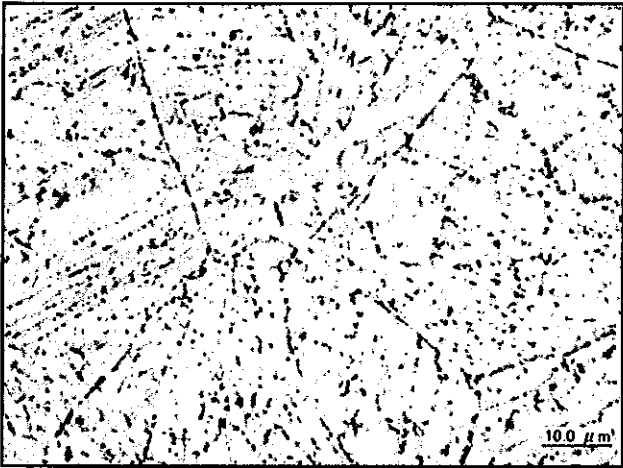
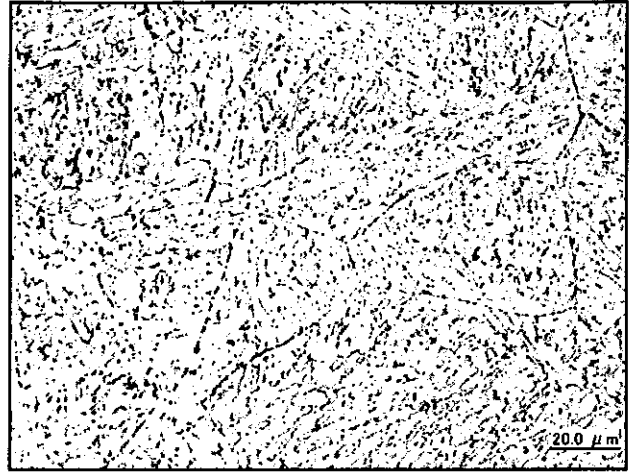
252

Photo II-8-2 Microstructure observation
RH Outlet Header (Circumferential weld at right side, top : Intercritical zone)



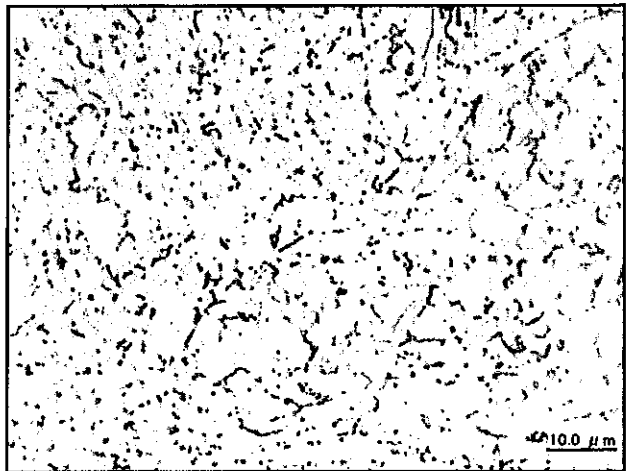
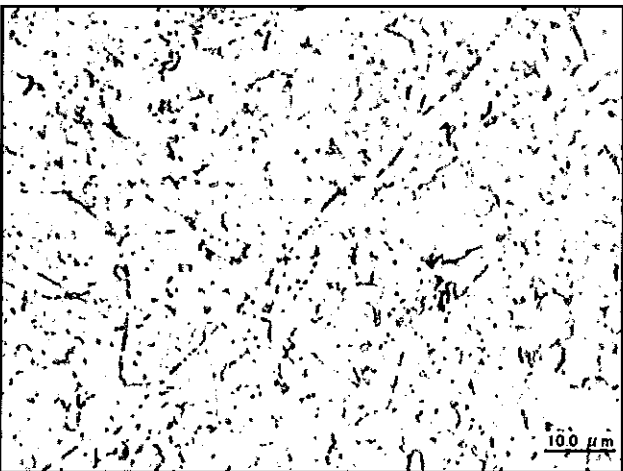
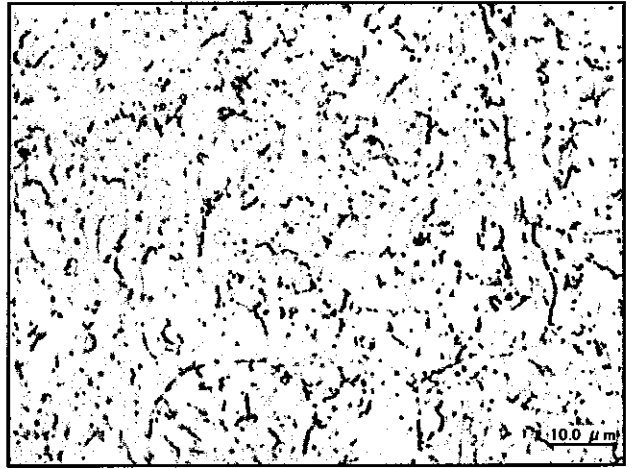
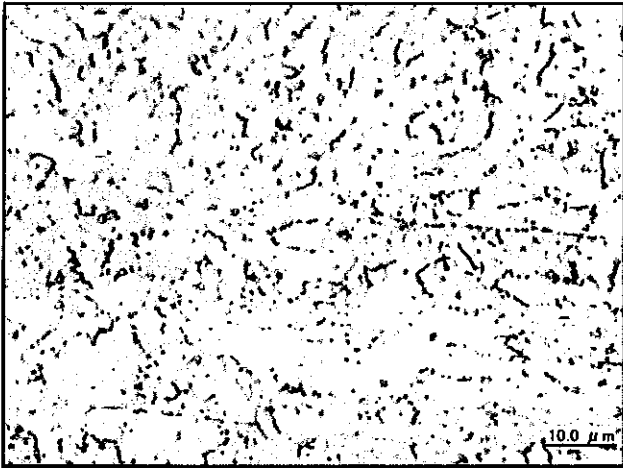
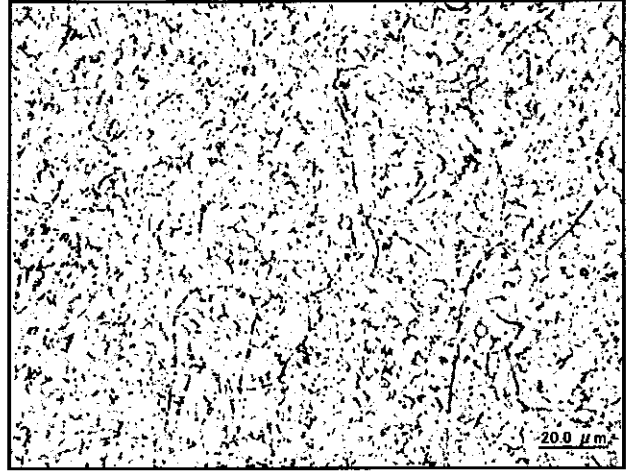
50x

Photo II-8-3 Microstructure observation
RH Outlet Header (Circumferential weld at right side, top : Fine grain HAZ)



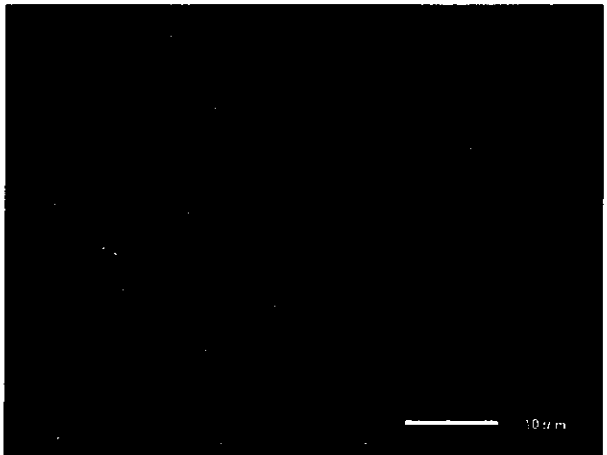
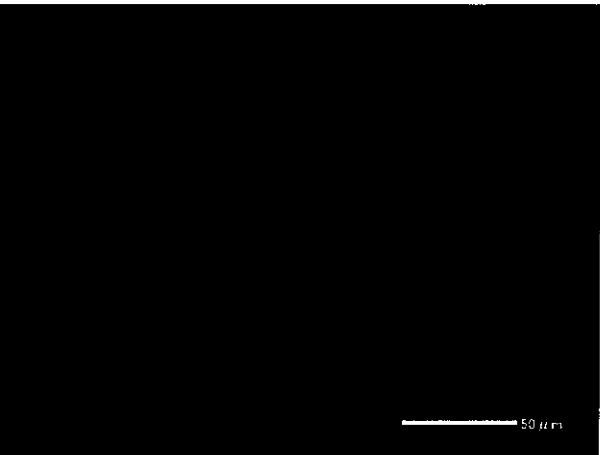
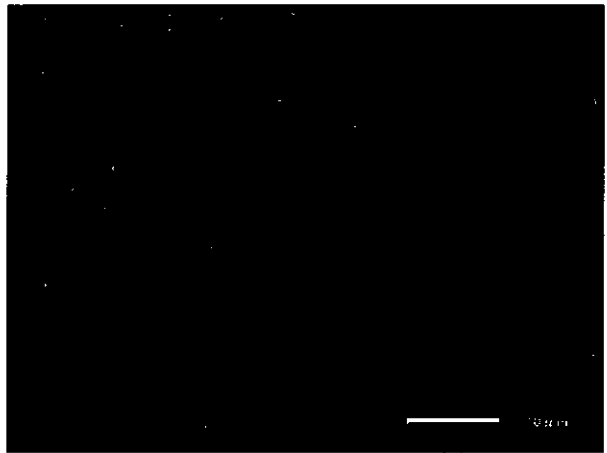
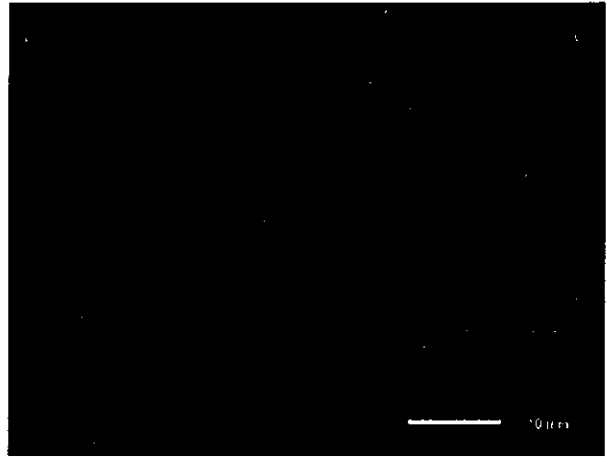
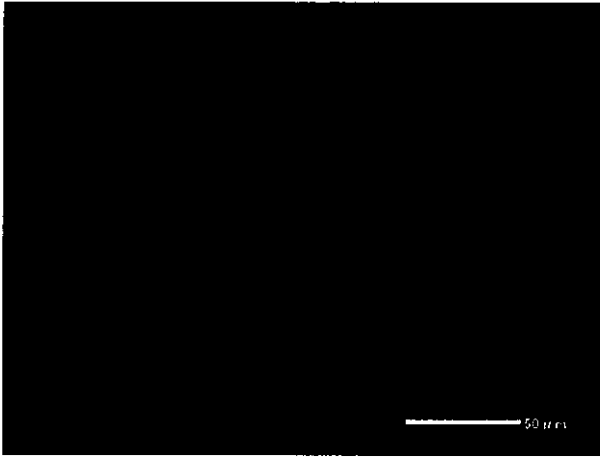
202

Photo II-8-4 Microstructure observation
RH Outlet Header (Circumferential weld at right side, top : Coarse grain HAZ)



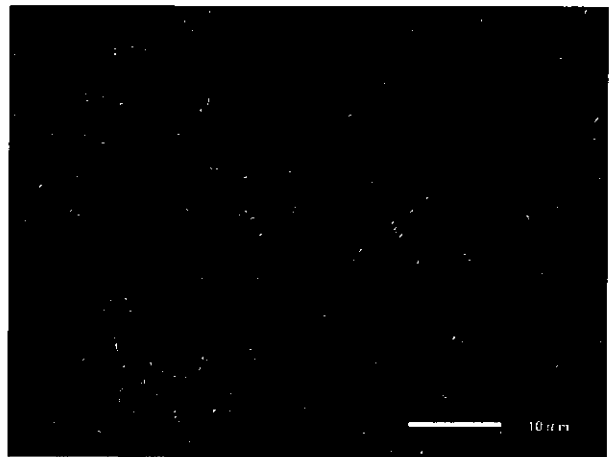
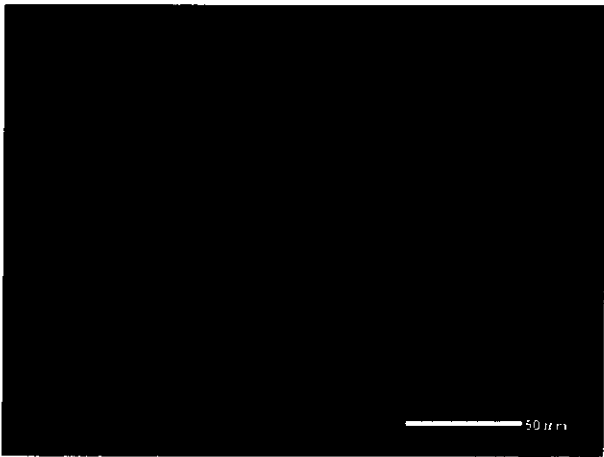
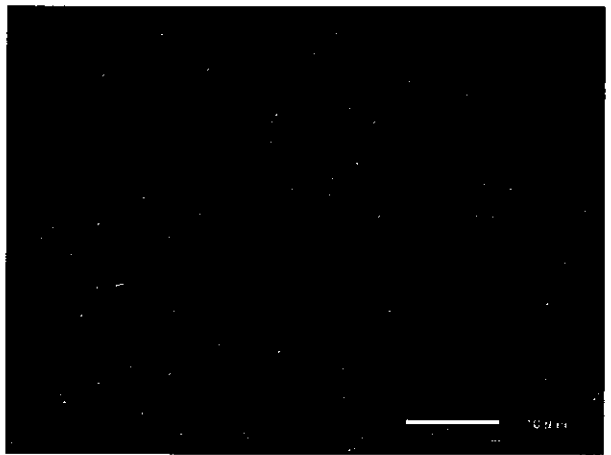
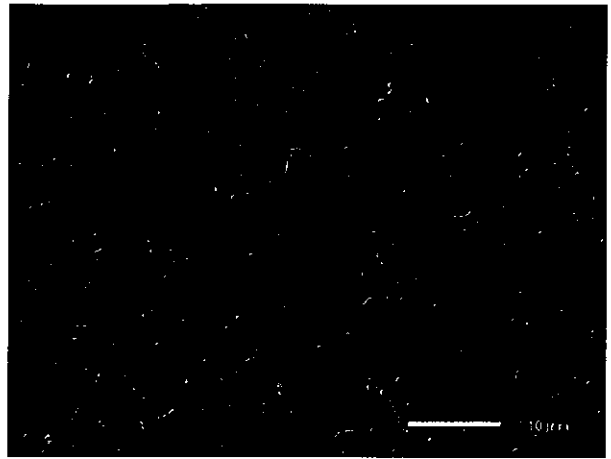
50x

Photo II-8-5 Microstructure observation
RH Outlet Header (Circumferential weld at right side, top : Weld metal)



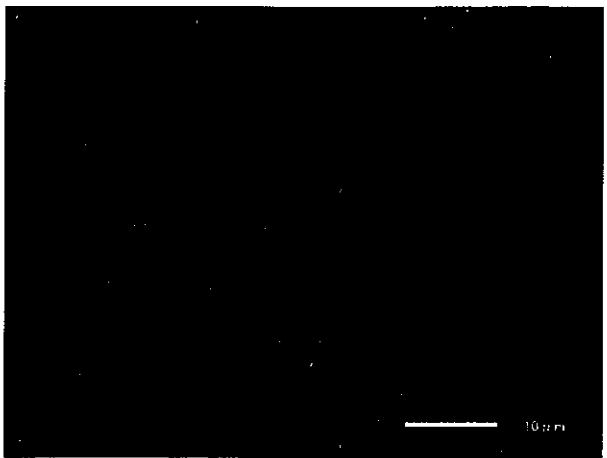
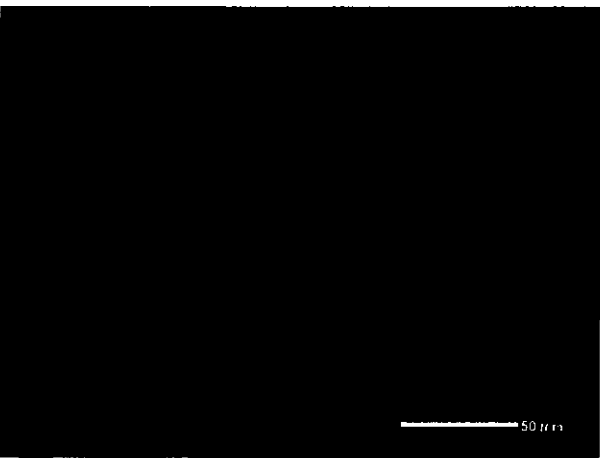
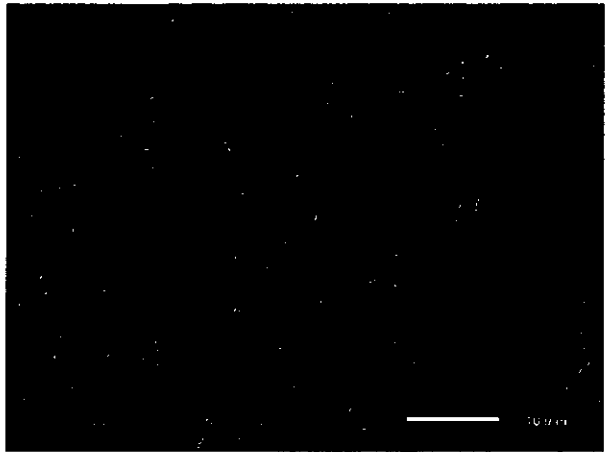
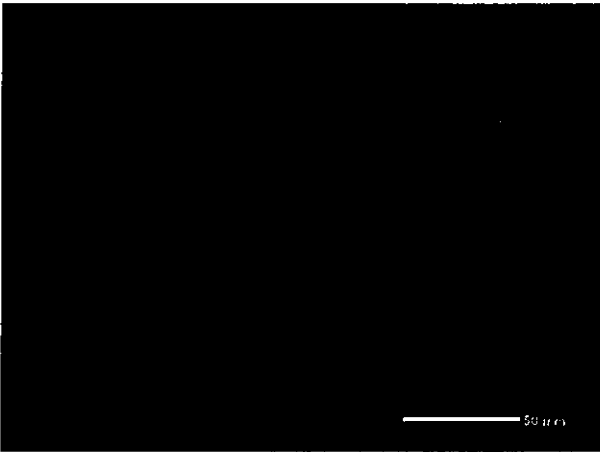
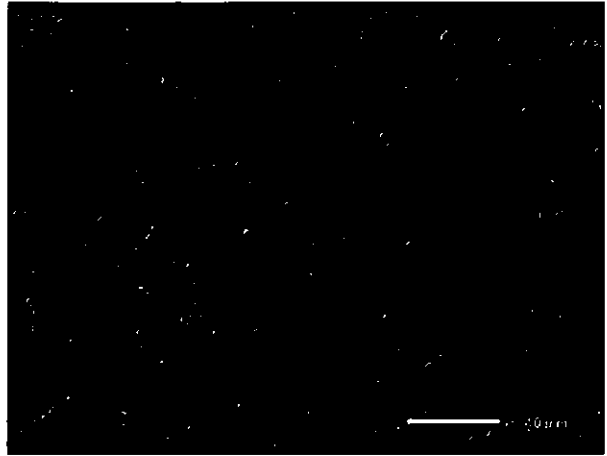
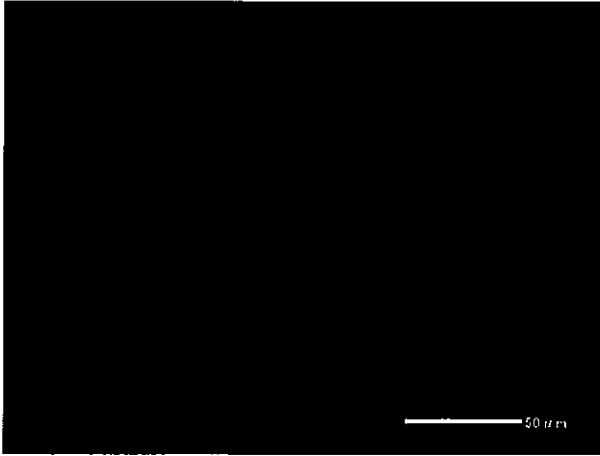
906

Photo II-8-6 SEM(Scanning electron microscope) observation
RH Outlet Header(Circumferential weld at right side, top : Fine grain HAZ)



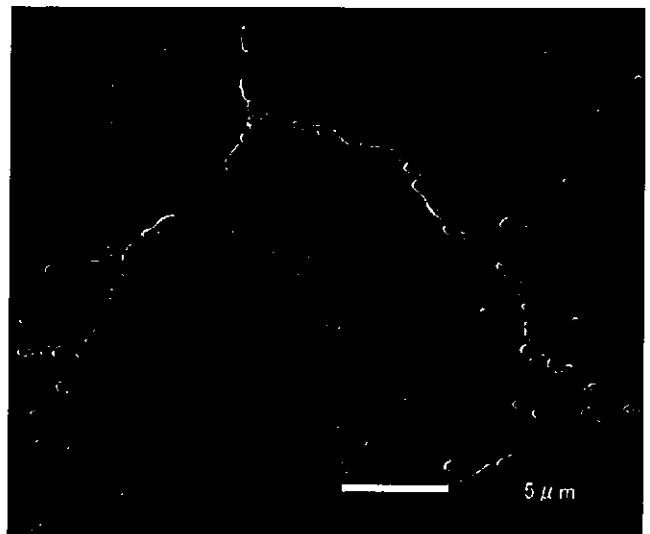
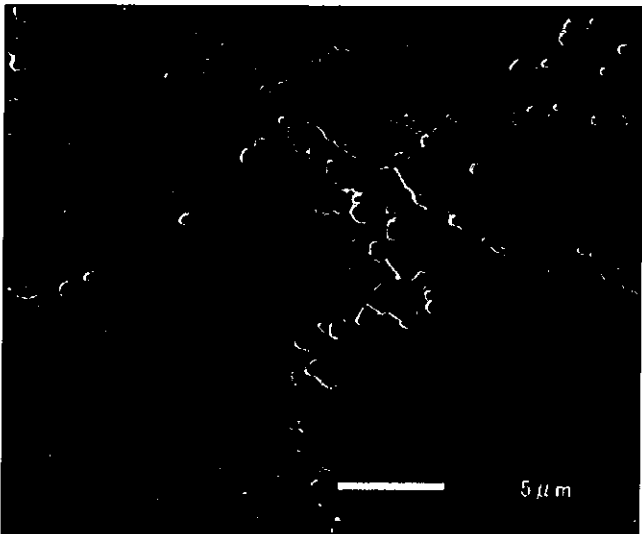
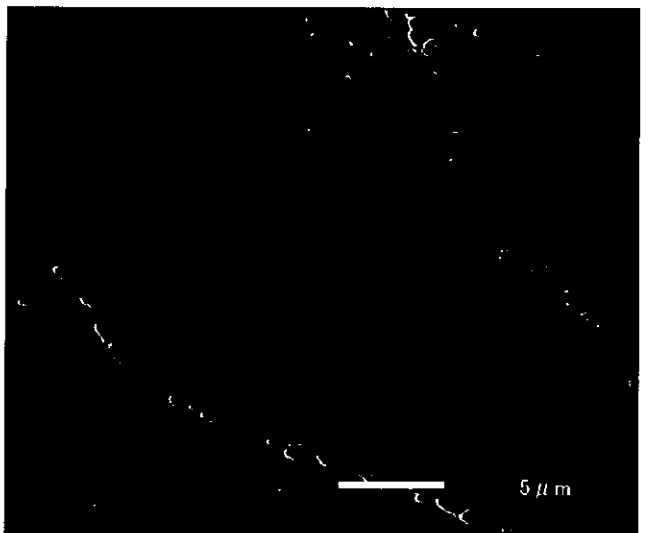
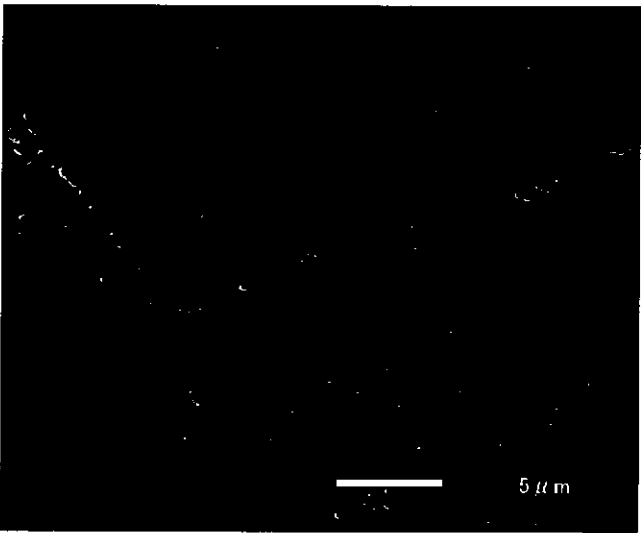
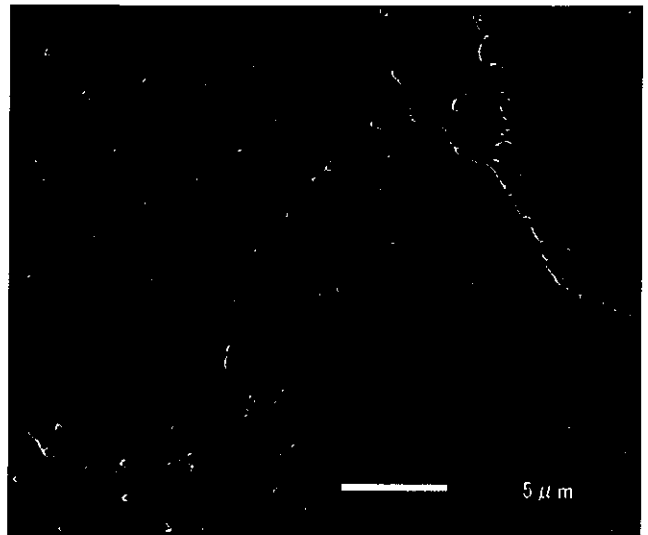
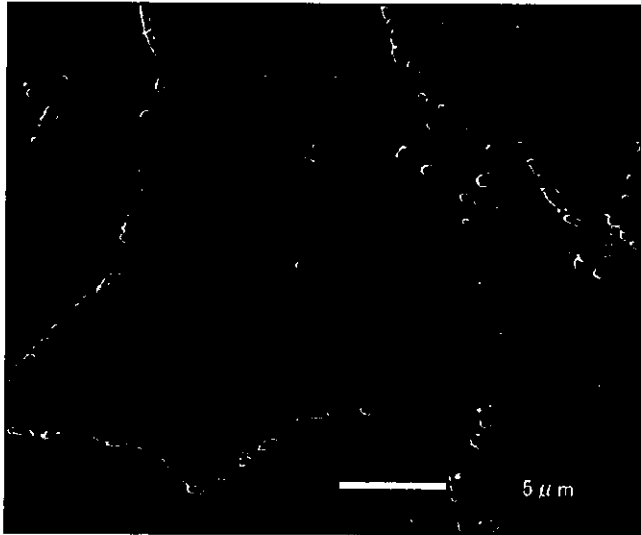
505

Photo II-8-7 SEM(Scanning electron microscope) observation
RH Outlet Header(Circumferential weld at right side, top : Coarse grain HAZ)



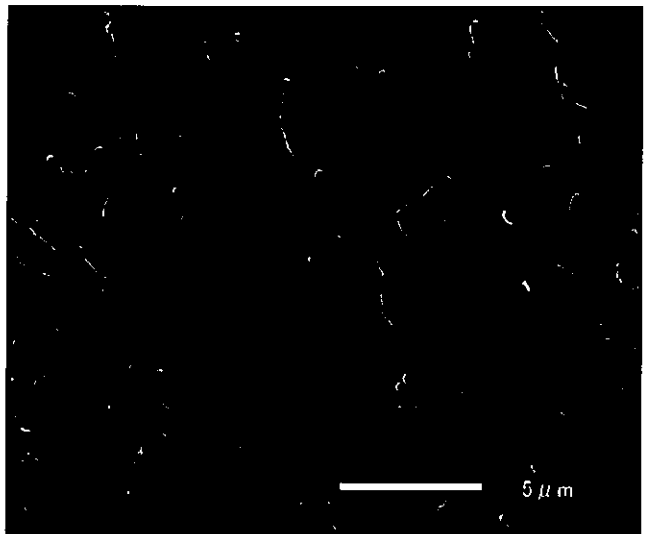
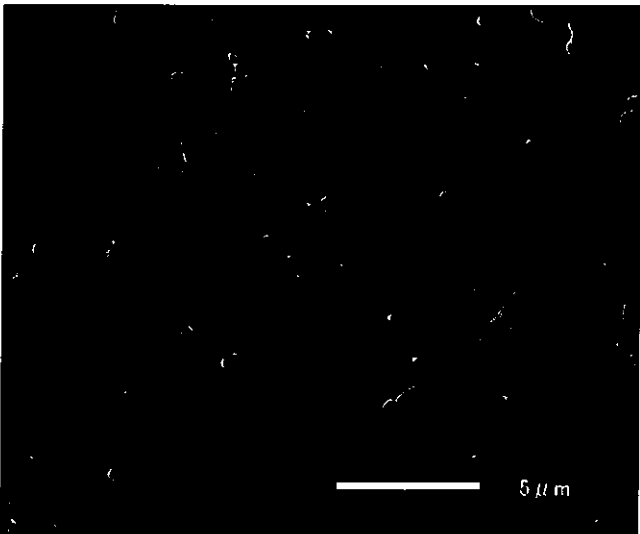
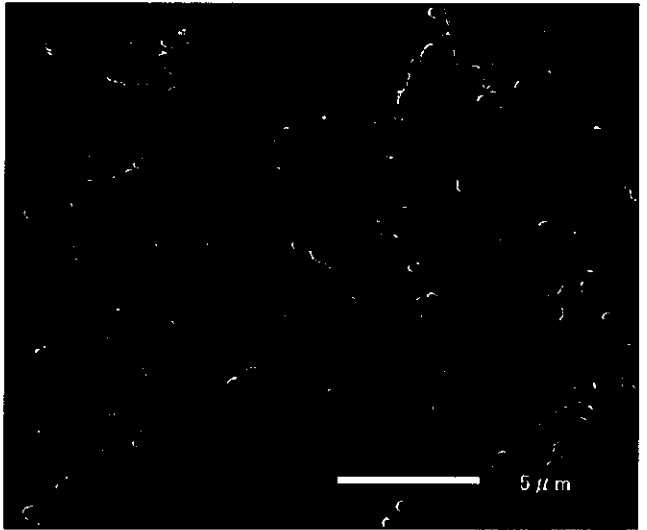
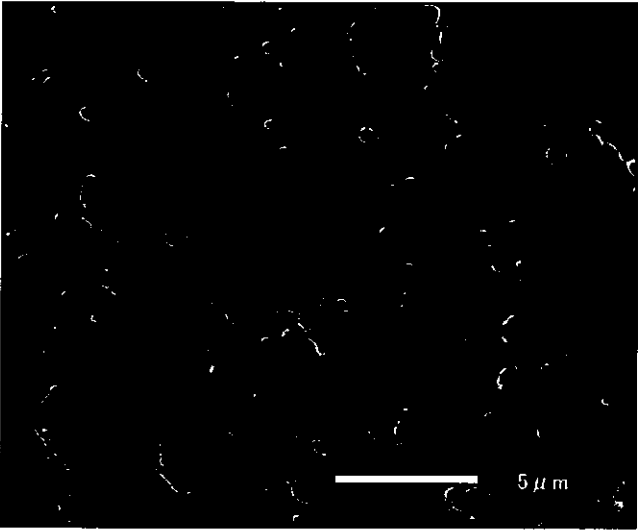
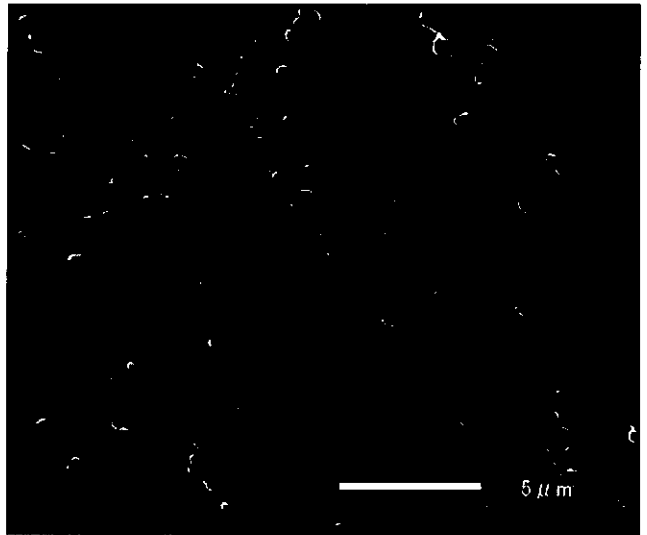
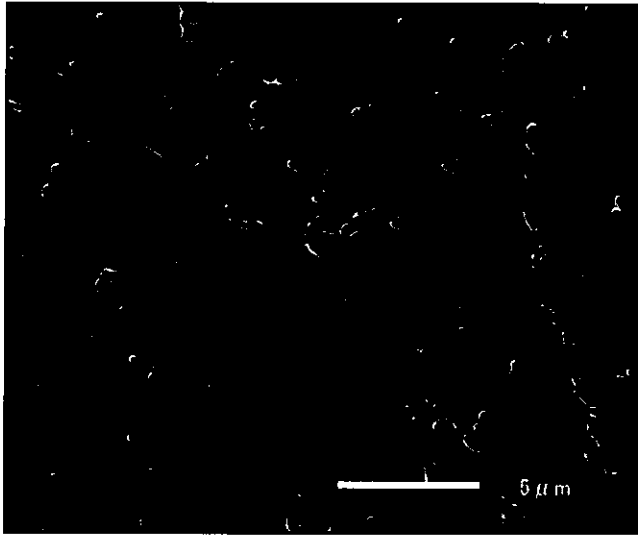
007

Photo II-8-8 SEM (Scanning electron microscope) observation
RH Outlet Header (Circumferential weld at right side, top: Weld metal)



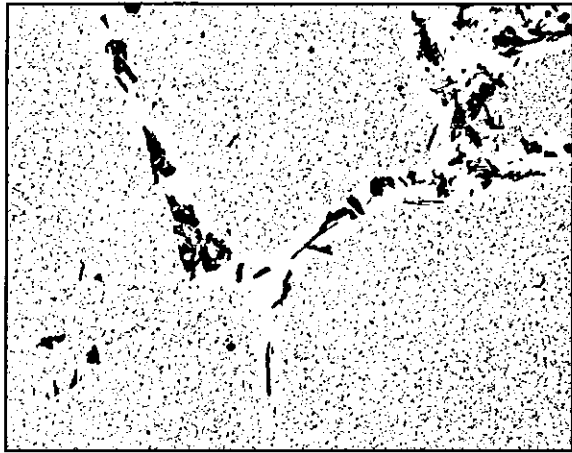
009

Photo II-8-9 Precipitates along grain boundary by SEM observation
RH Outlet Header (Circumferential weld at right side, top : Base metal)

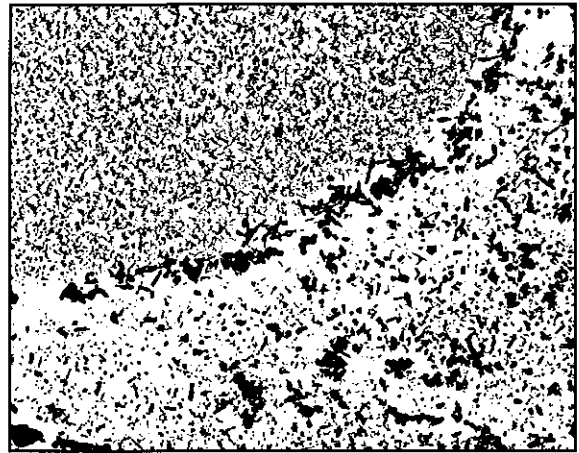


017

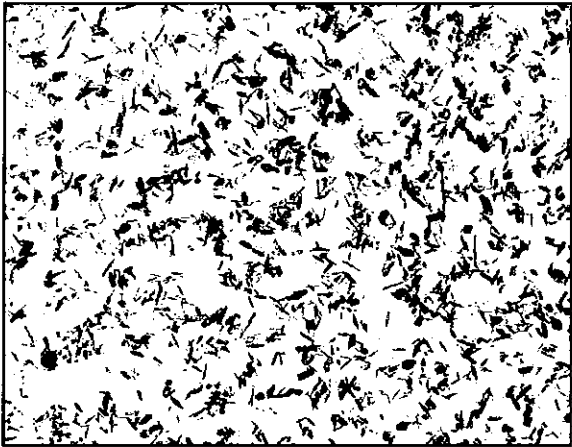
Photo II-8-10 Precipitates along grain boundary by SEM observation
RH Outlet Header (Circumferential weld at right side, top : Fine grain HAZ)



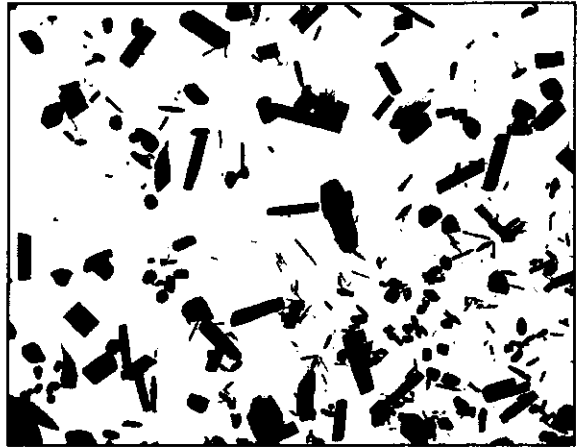
5 μ m



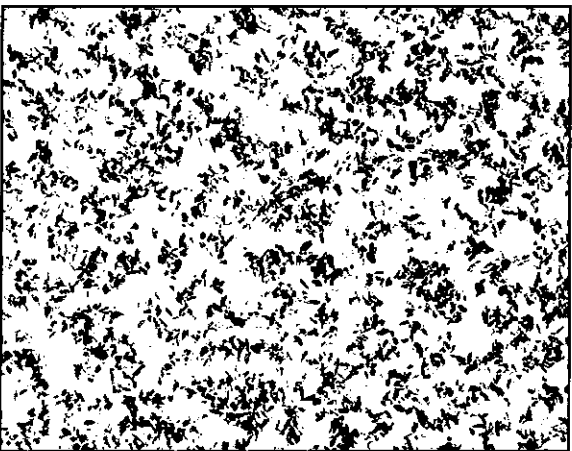
5 μ m



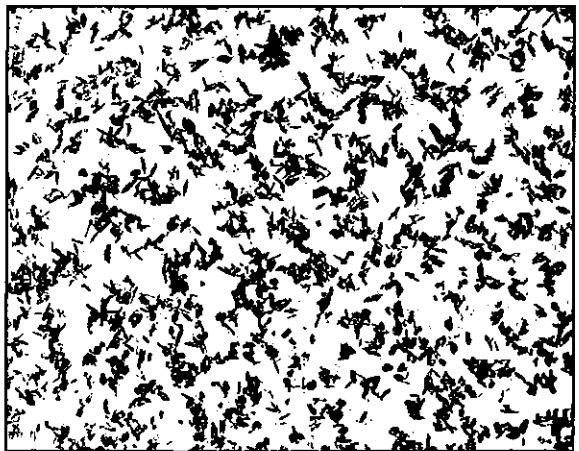
1 μ m



1 μ m

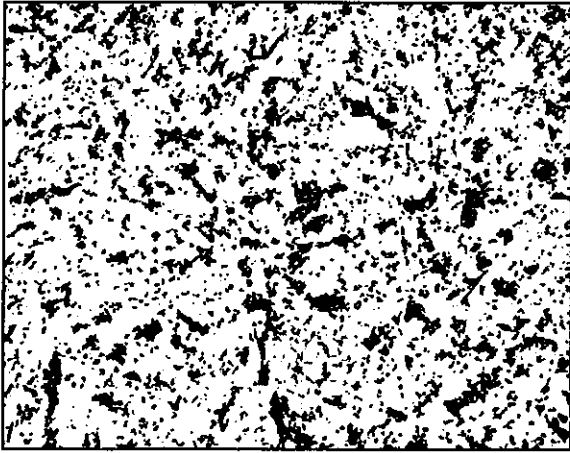


1 μ m

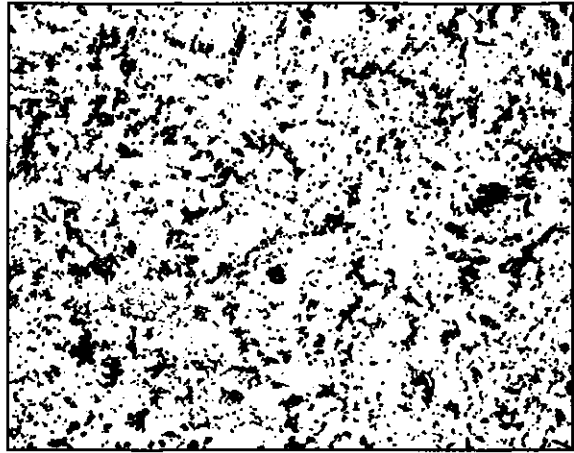


1 μ m

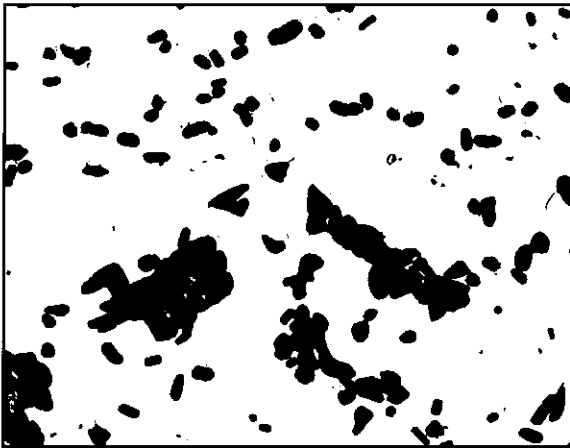
Photo II-8-11 Precipitates by TEM (Transmission electron microscope) observation
RH Outlet Header (Circumferential weld at right side, top : Base metal)



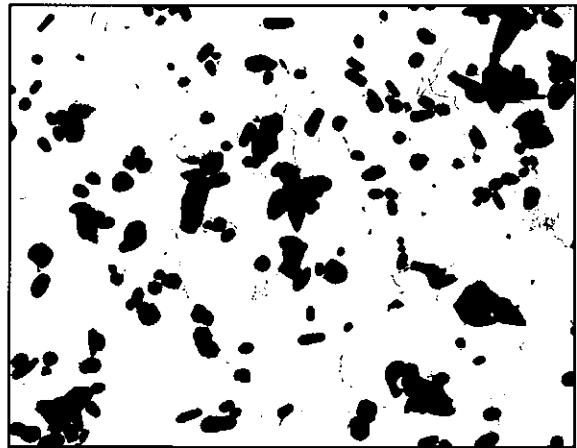
5 μ m



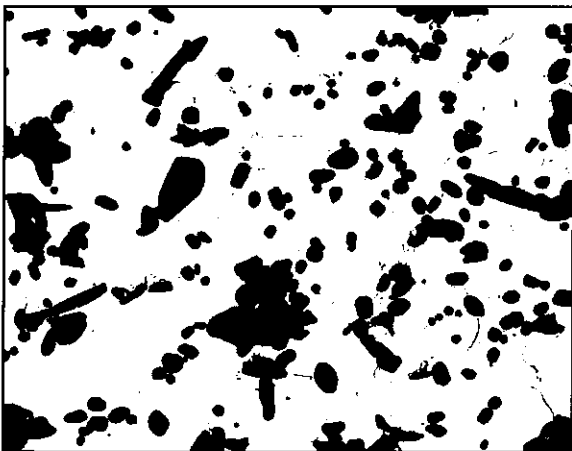
5 μ m



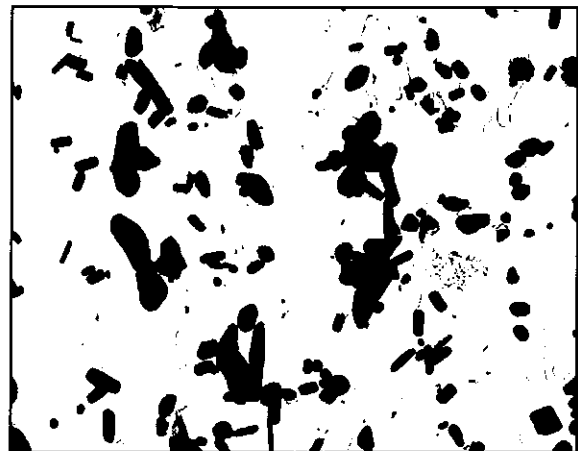
1 μ m



1 μ m

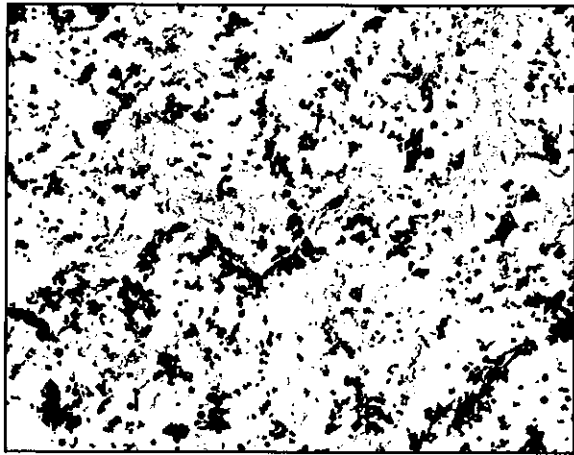


1 μ m

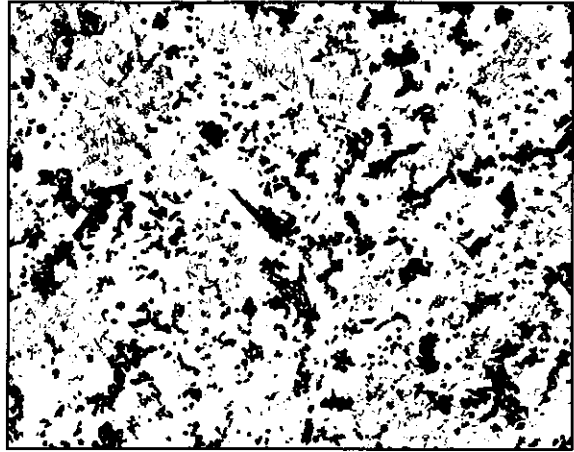


1 μ m

Photo II-8-12 Precipitates by TEM (Transmission electron microscope) observation
RH Outlet Header (Circumferential weld at right side, top: Fine grain HAZ)



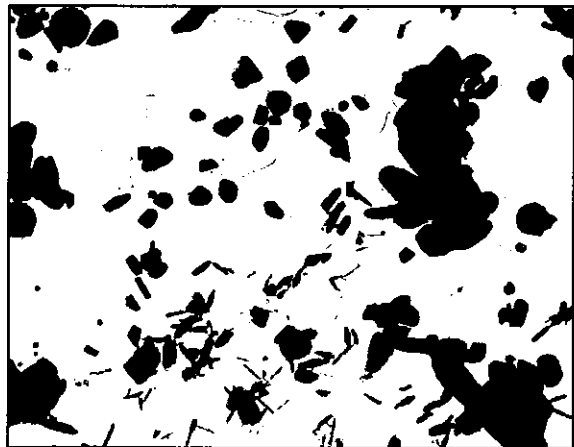
5 μ m



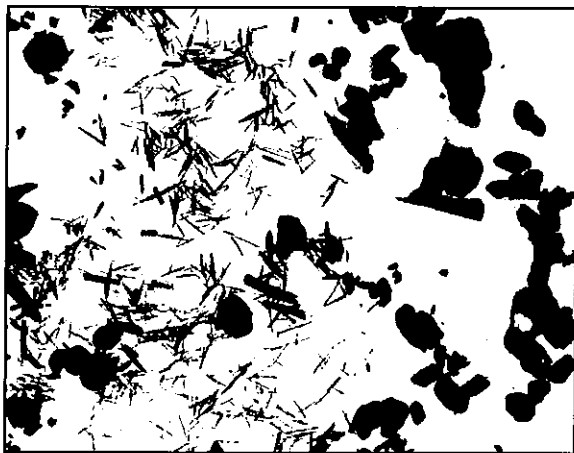
5 μ m



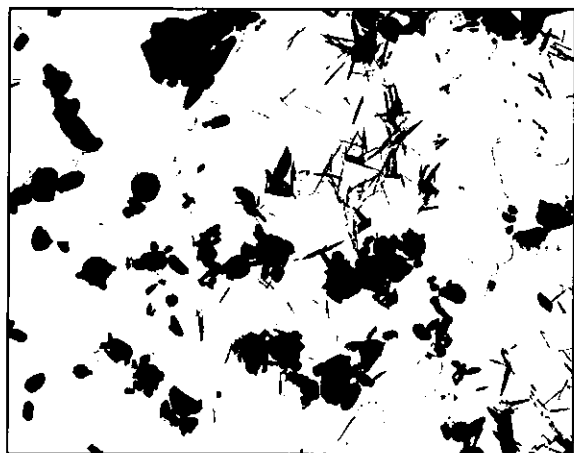
1 μ m



1 μ m

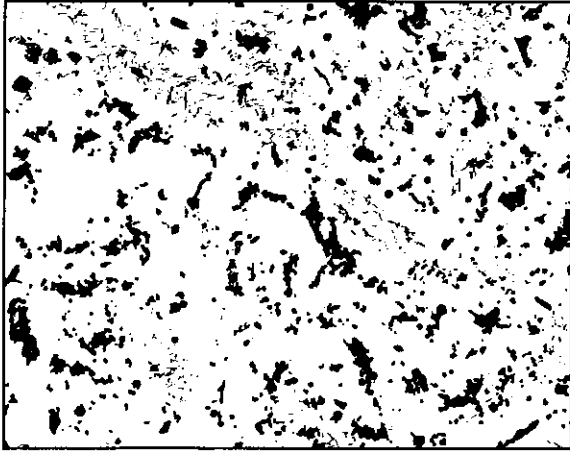


1 μ m

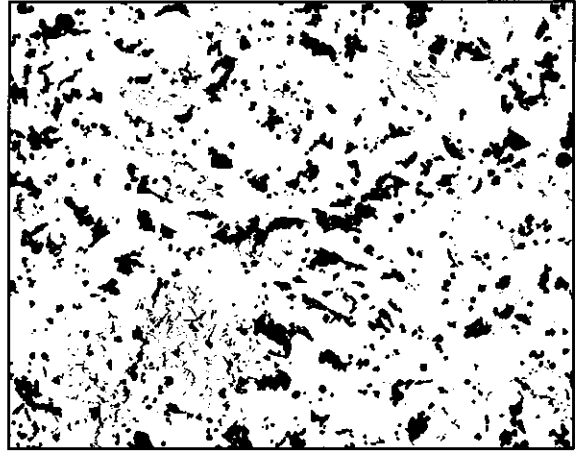


1 μ m

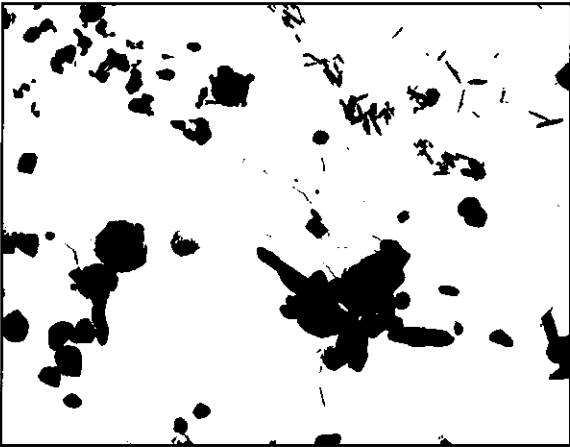
Photo II-8-13 Precipitates by TEM (Transmission electron microscope) observation
RH Outlet Header (Circumferential weld at right side, top : Coarse grain HAZ)



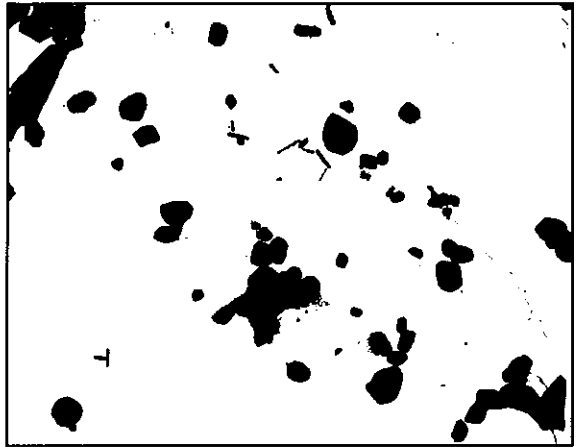
5 μm



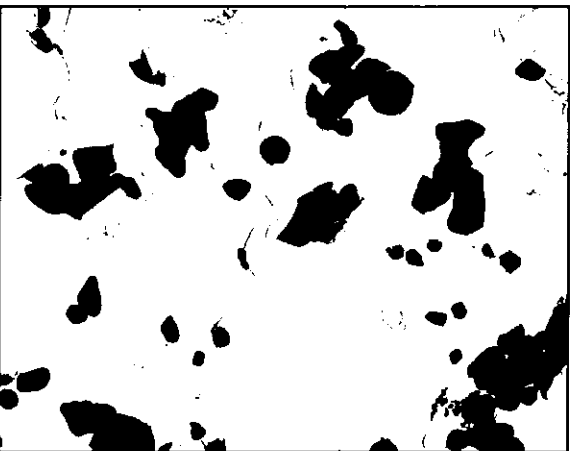
5 μm



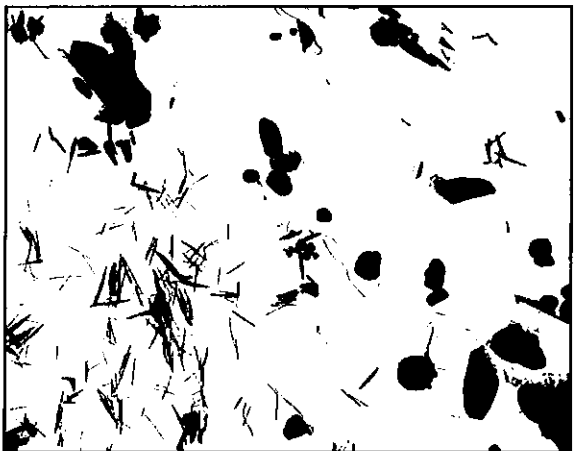
1 μm



1 μm



1 μm



1 μm

Photo II-8-14 Precipitates by TEM (Transmission electron microscope) observation
RH Outlet Header (Circumferential weld at right side, top : Weld metal)

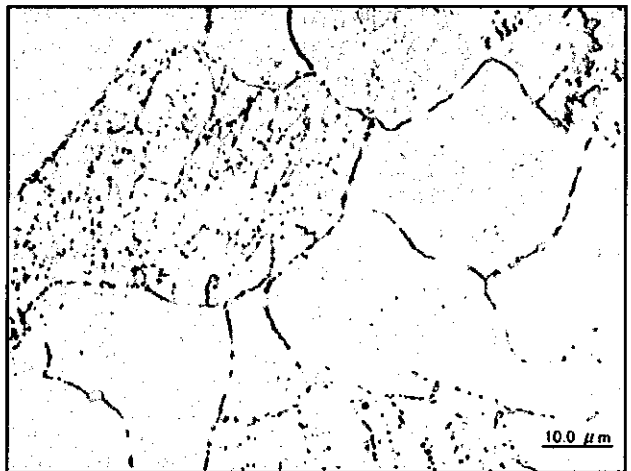
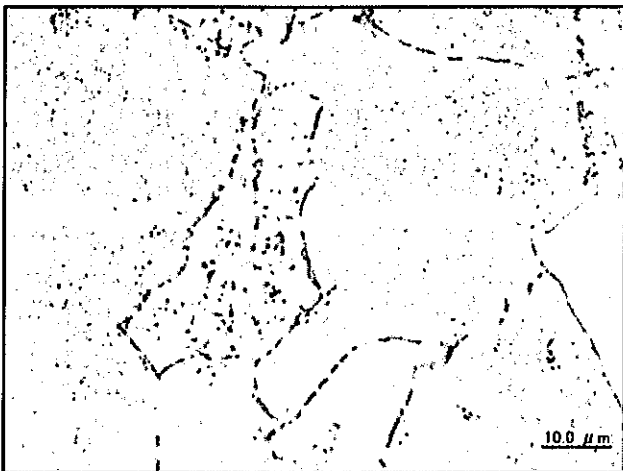
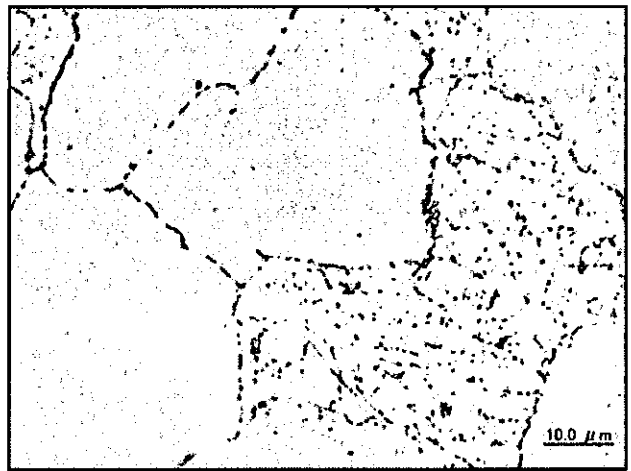
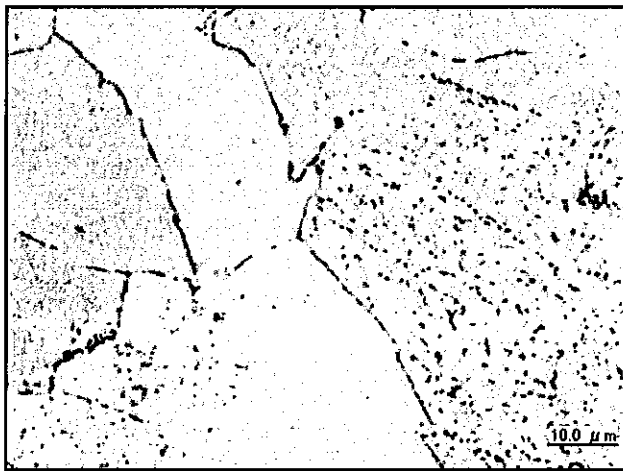
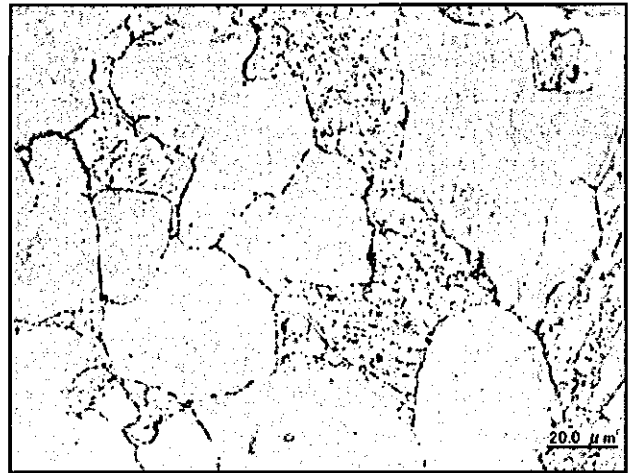
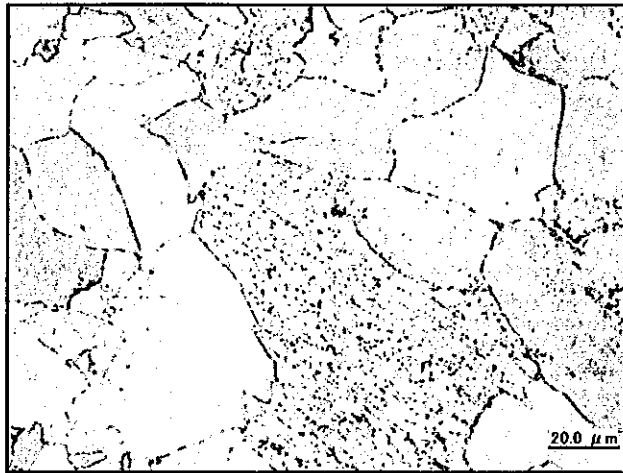


Photo II-9-1 Microstructure observation
RH Outlet Header (Circumferential weld at right side, front : Base metal)

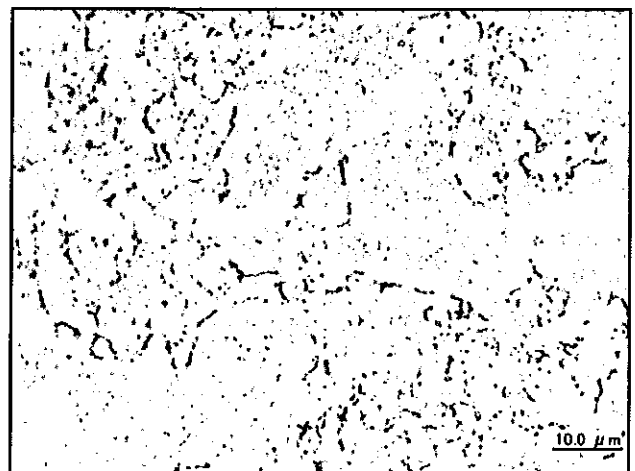
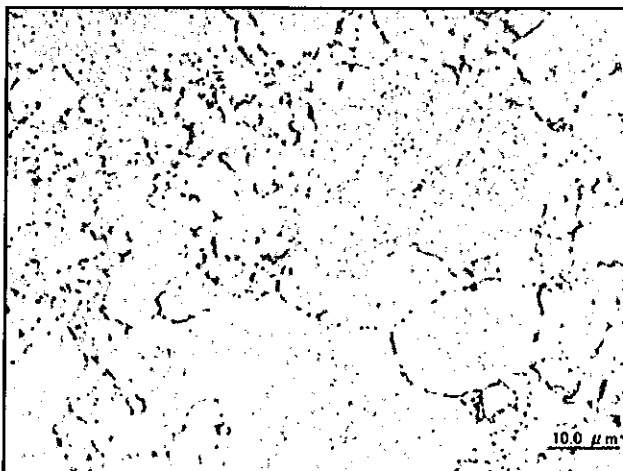
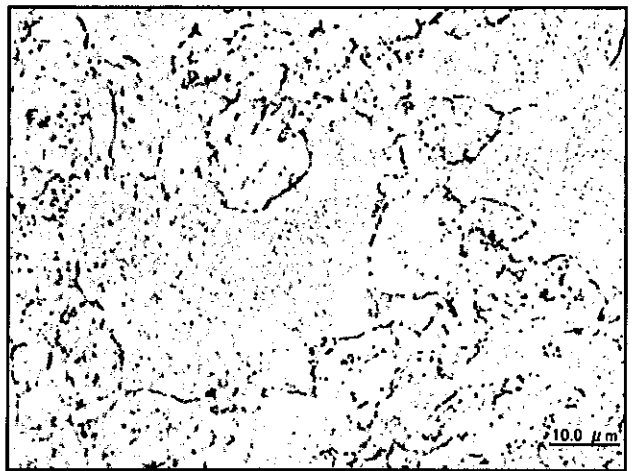
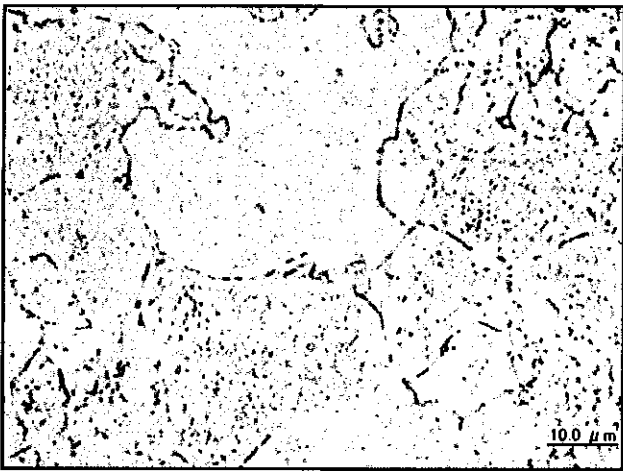
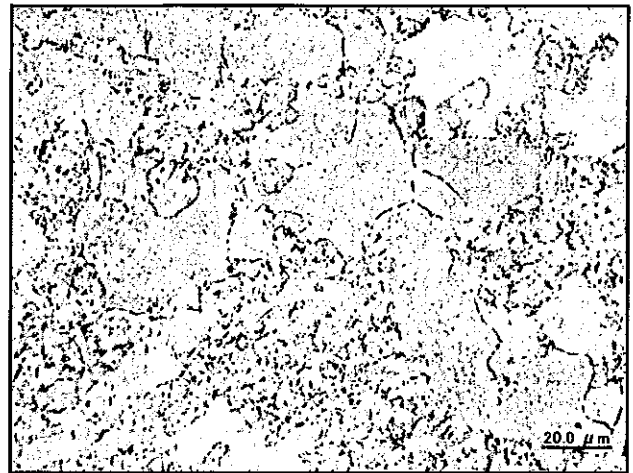
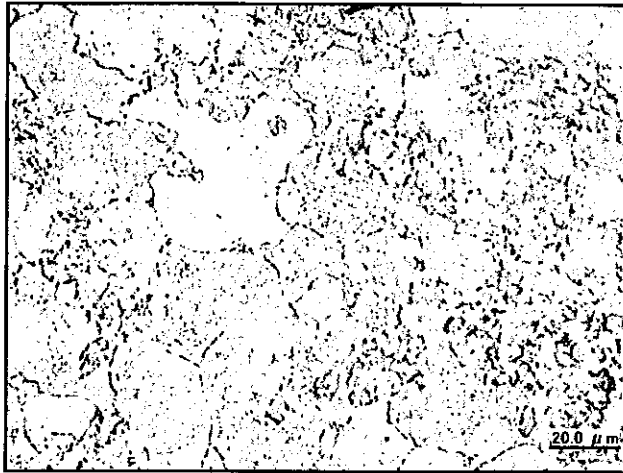


Photo II-9-2 Microstructure observation
RH Outlet Header (Circumferential weld at right side, front : Intercritical zone)

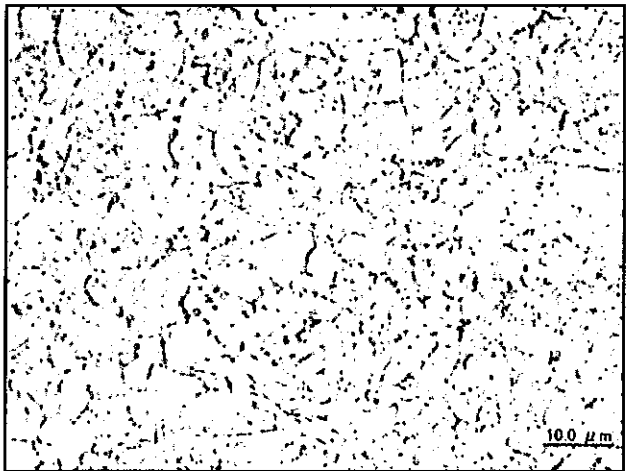
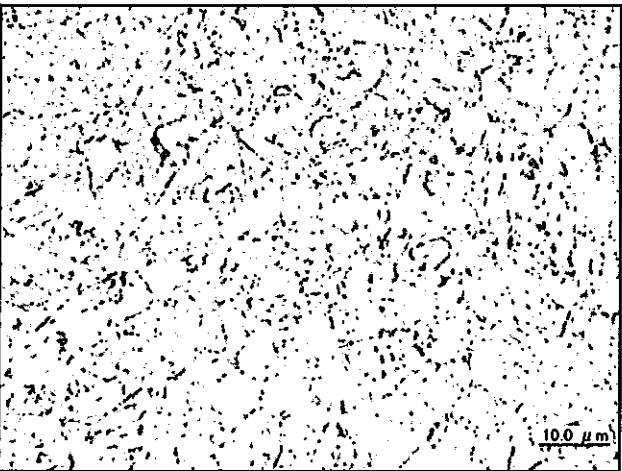
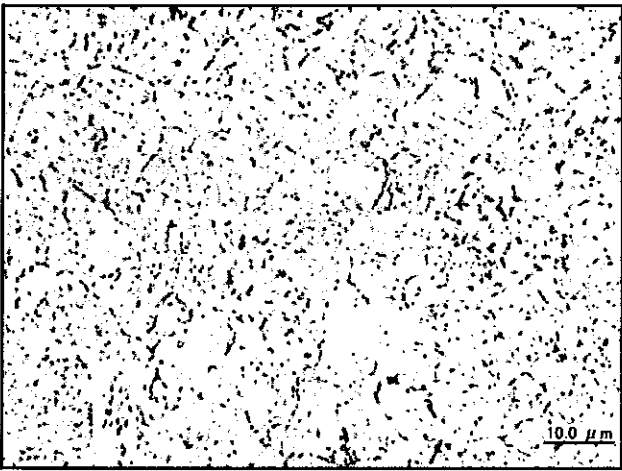
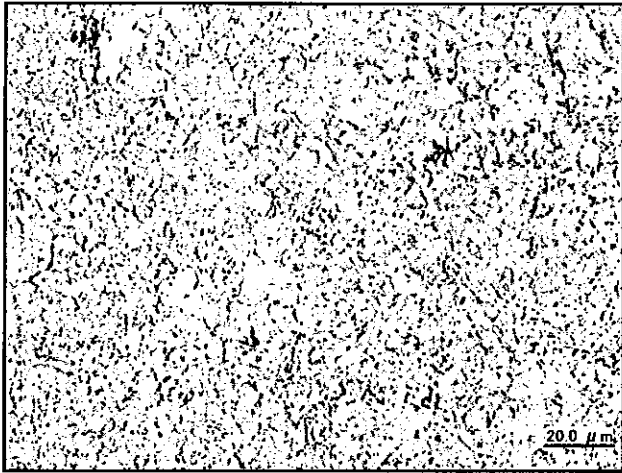
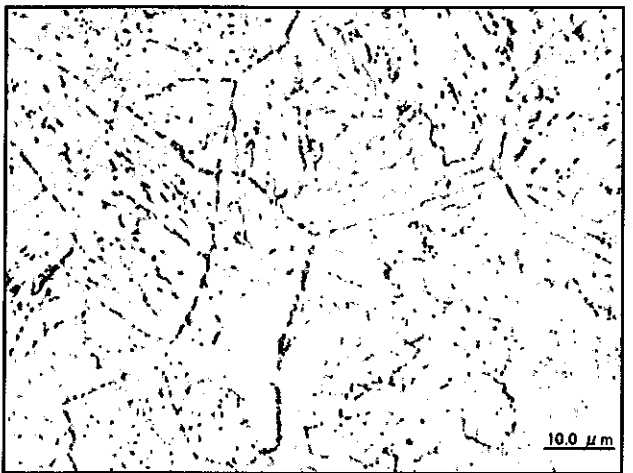
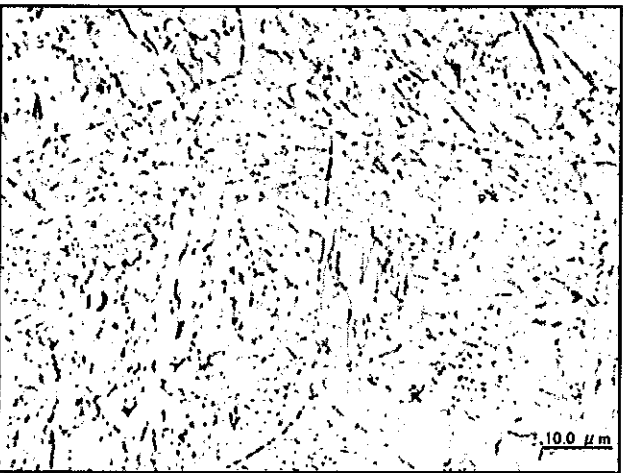
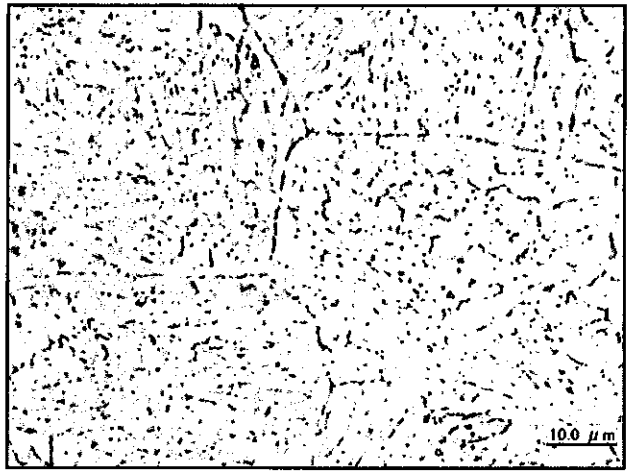
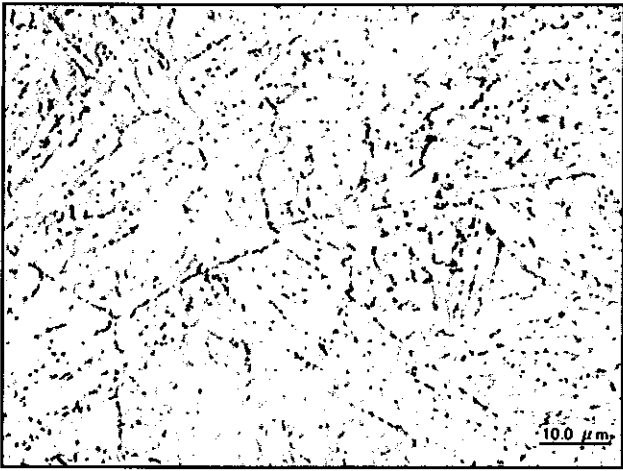
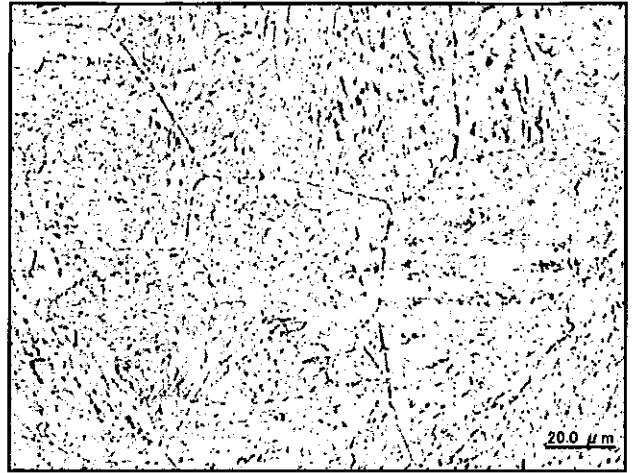
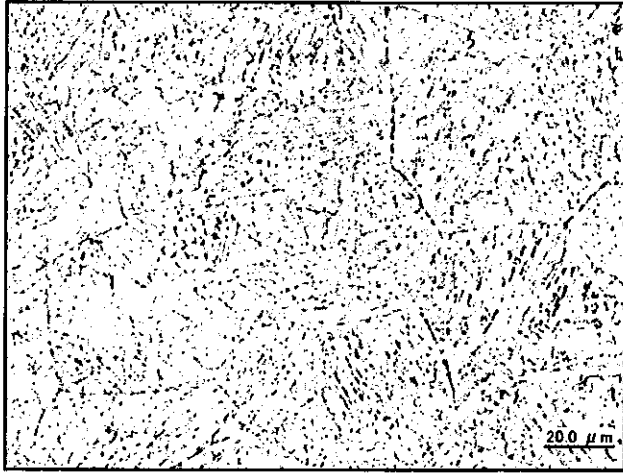


Photo II-9-3 Microstructure observation
RH Outlet Header (Circumferential weld at right side, front : Fine grain HAZ)



3/14

Photo II-9-4 Microstructure observation
RH Outlet Header (Circumferential weld at right side, front : Coarse grain HAZ)

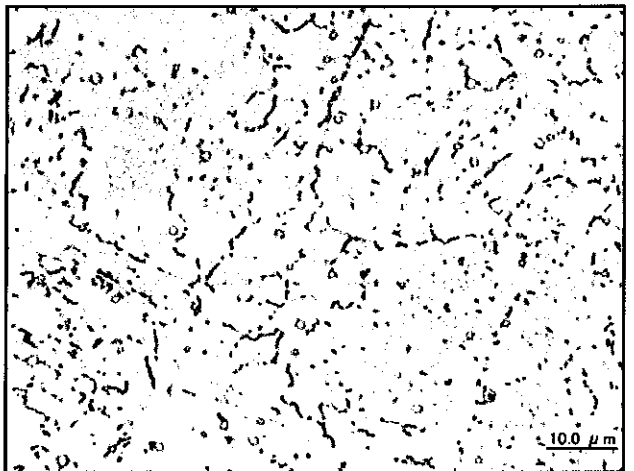
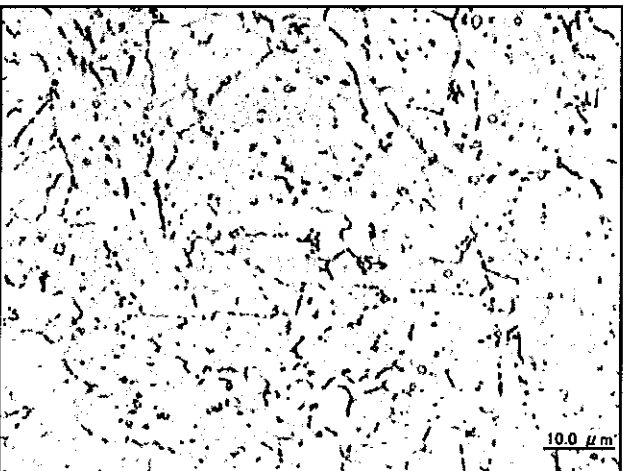
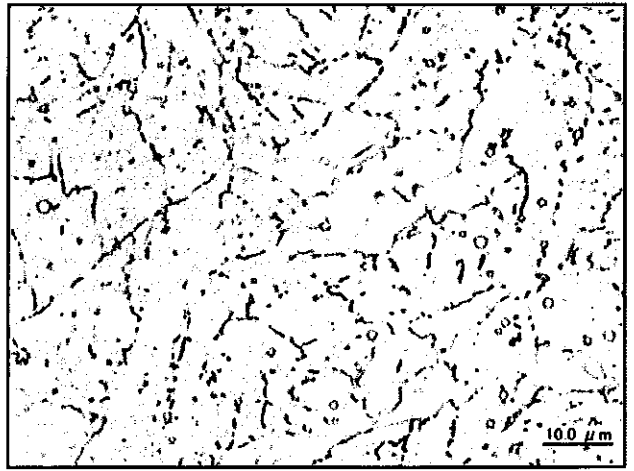
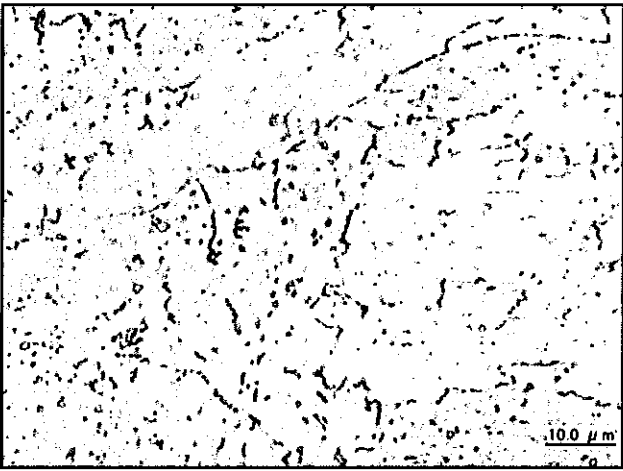
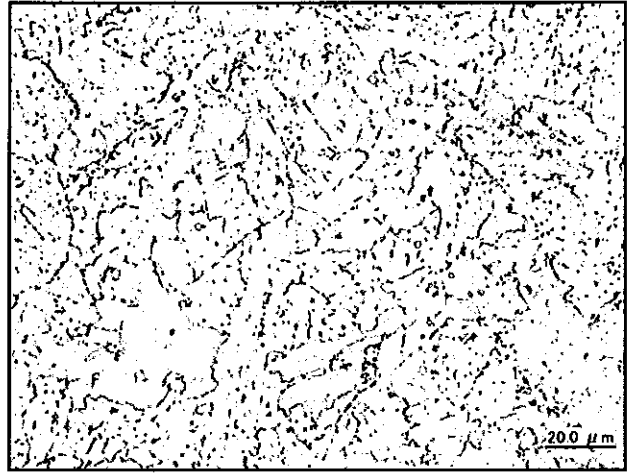
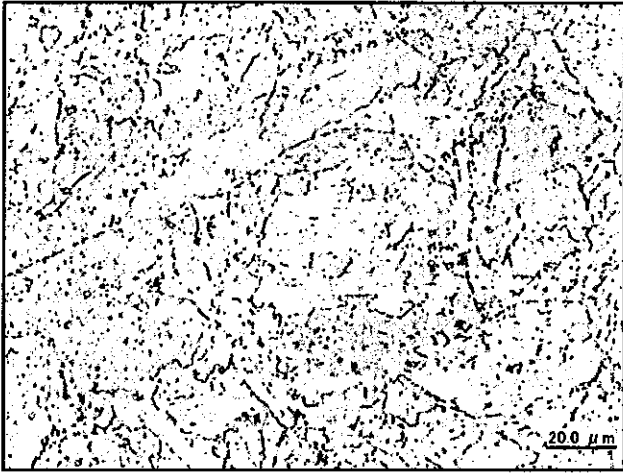


Photo II-9-5 Microstructure observation
RH Outlet Header (Circumferential weld at right side, front : Weld metal)

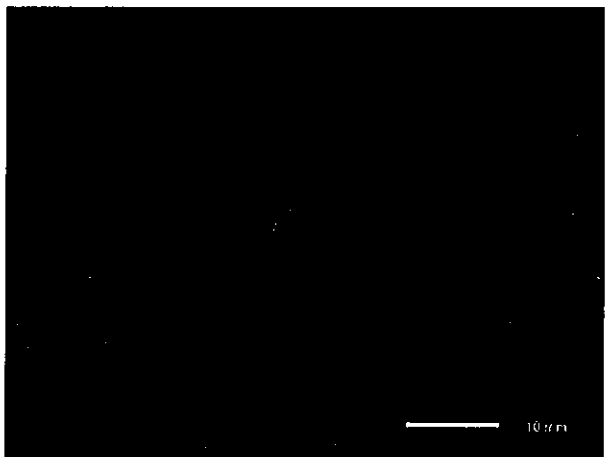
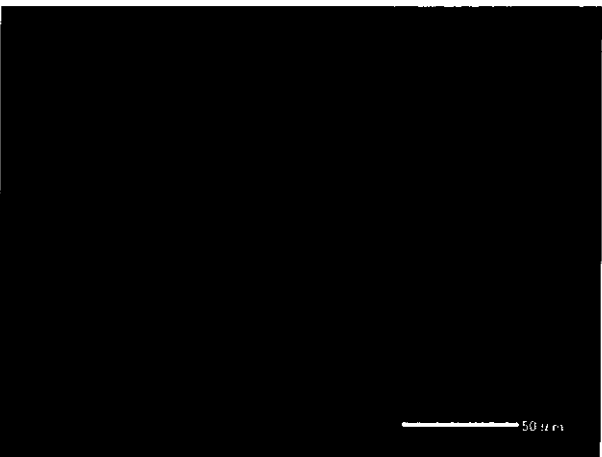
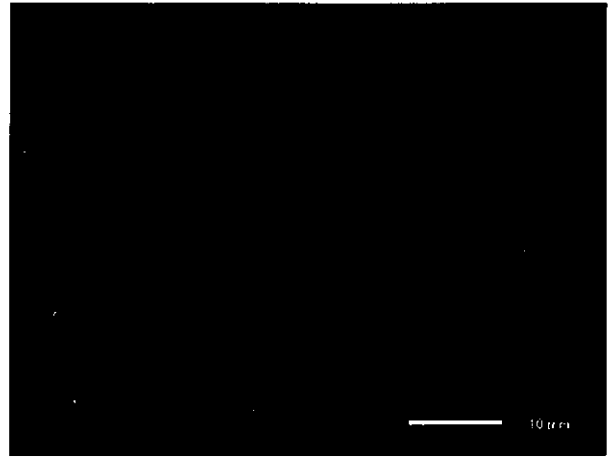
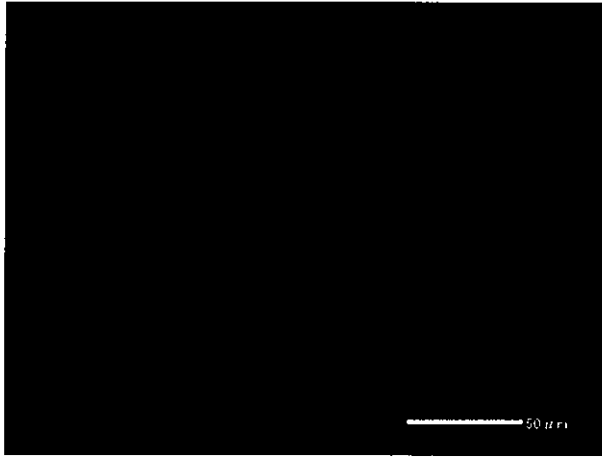


Photo II-9-6 SEM(Scanning electron microscope) observation
RH Outlet Header(Circumferential weld at right side, front : Fine grain HAZ)

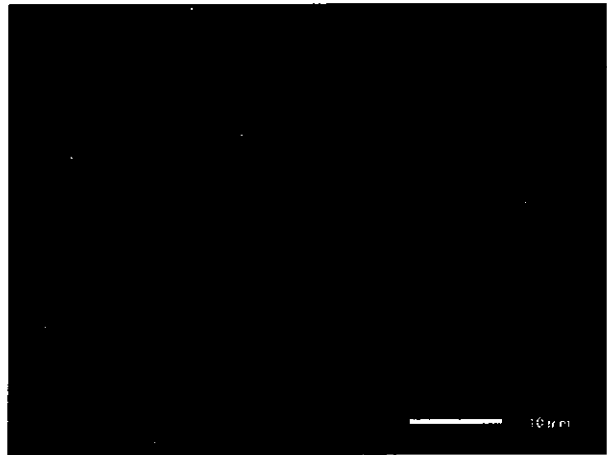
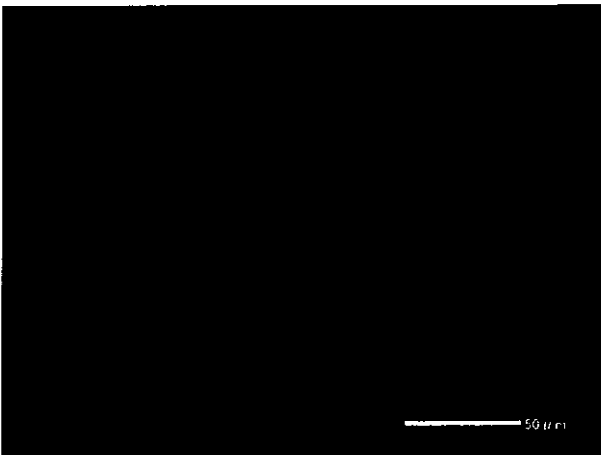
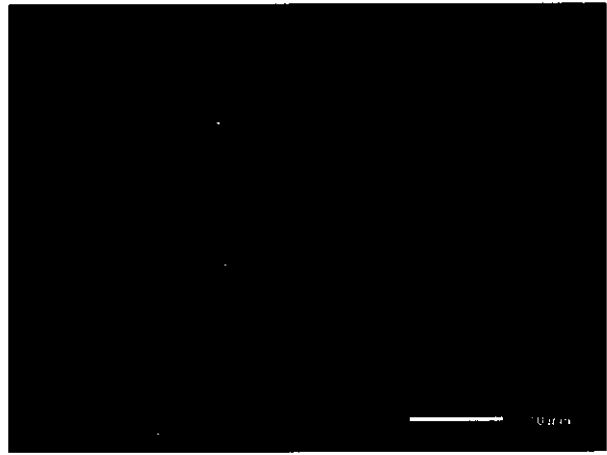
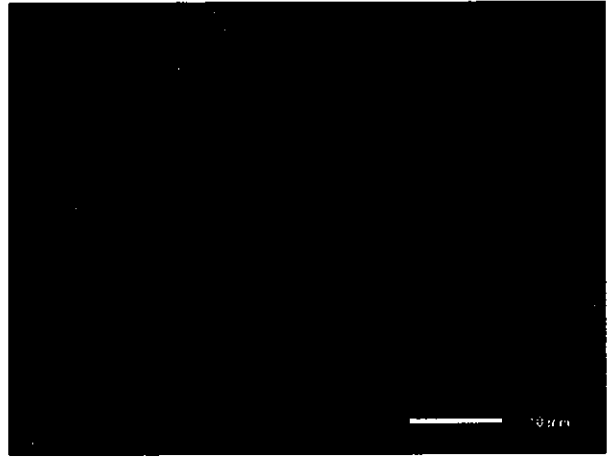
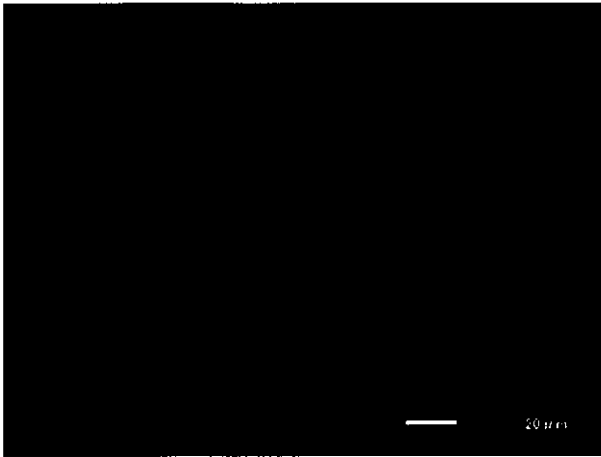
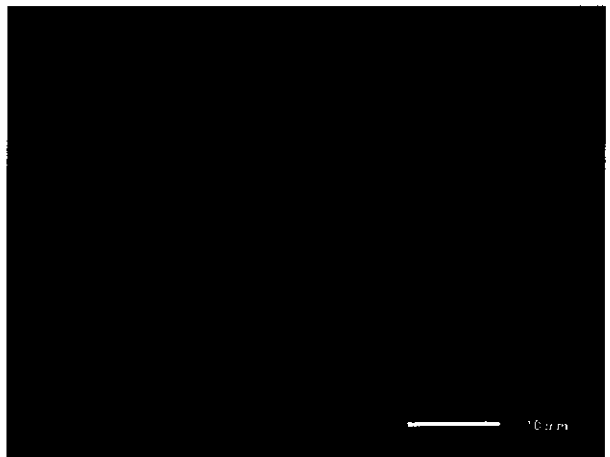
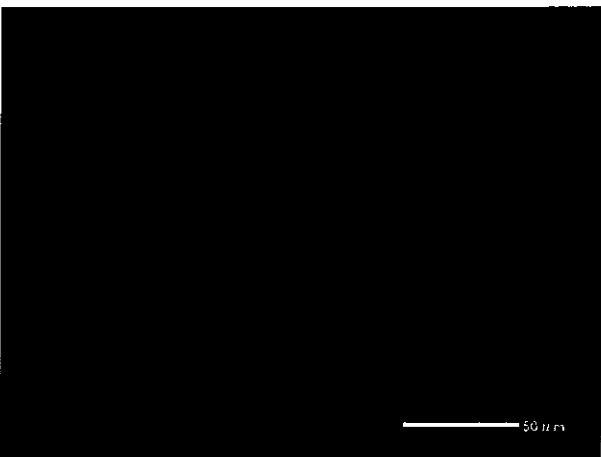
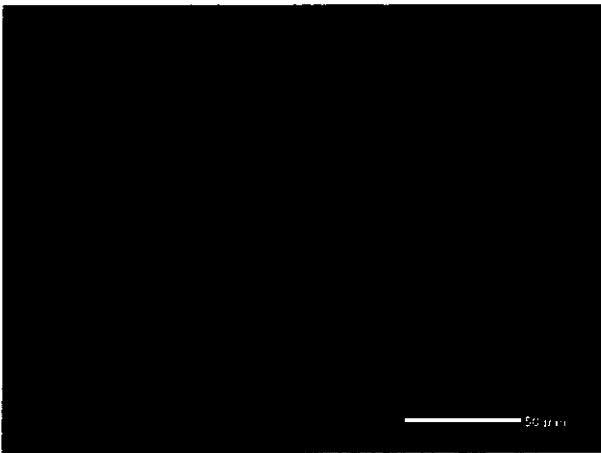
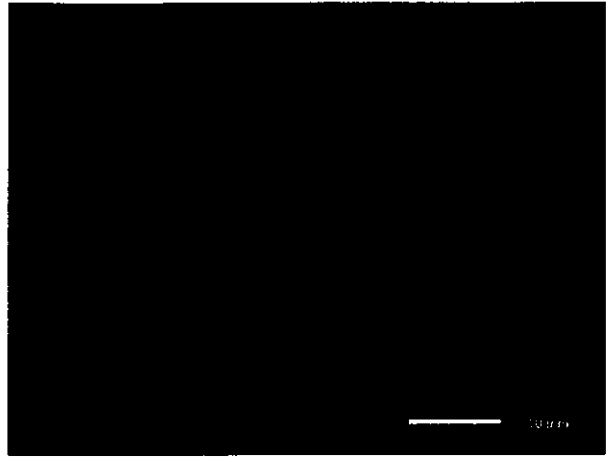


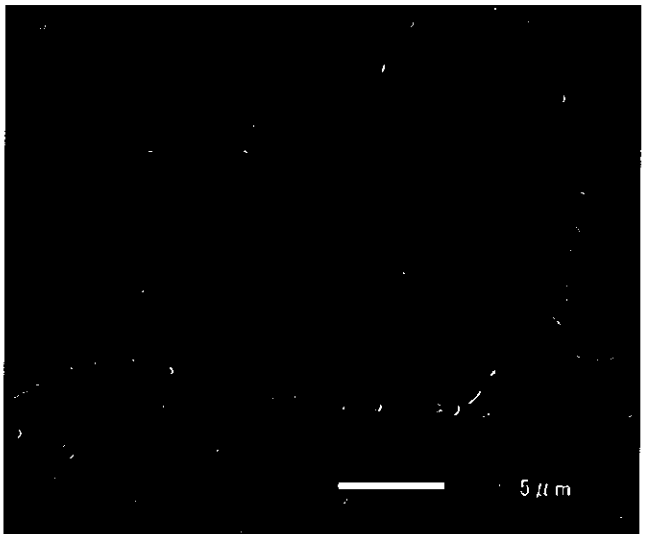
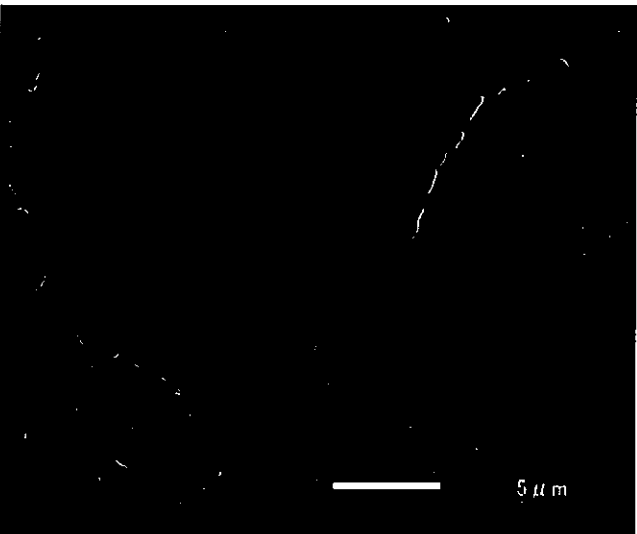
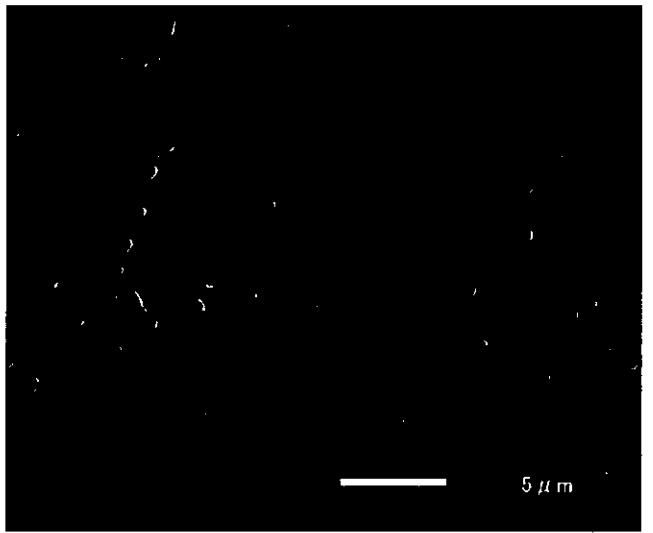
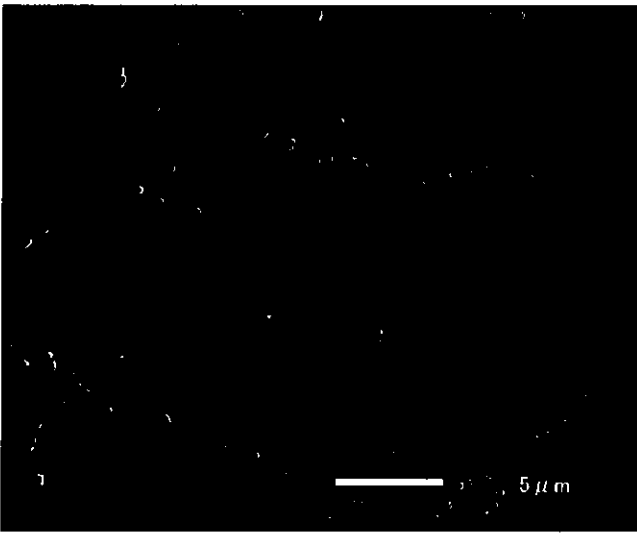
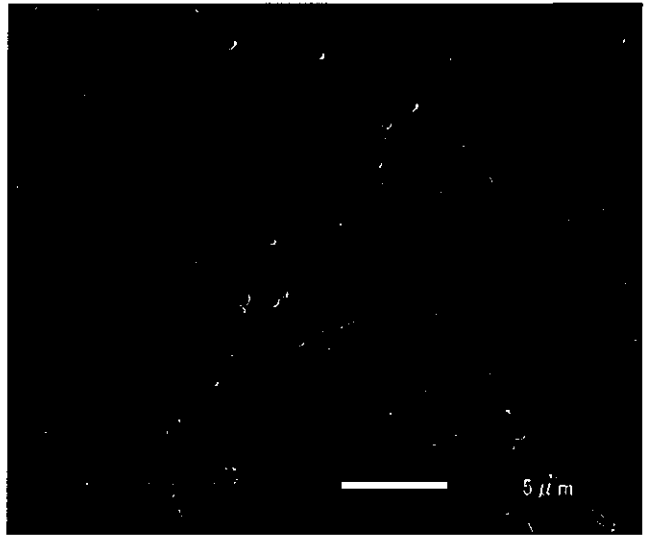
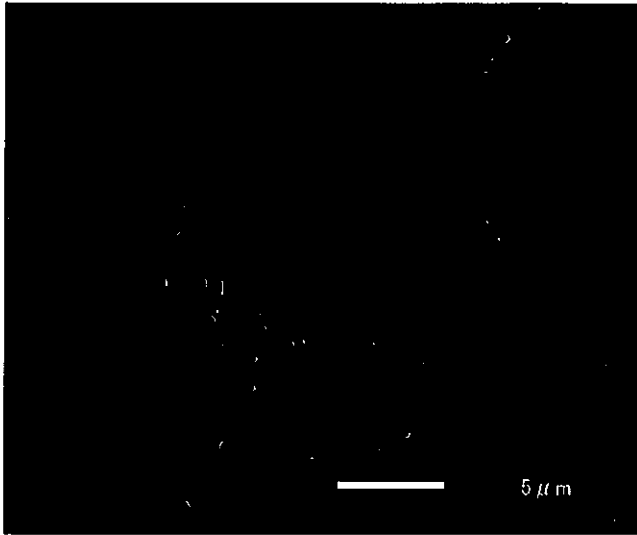
Photo II-9-7 SEM (Scanning electron microscope) observation
RH Outlet Header (Circumferential weld at right side, front : Coarse grain HAZ)

128



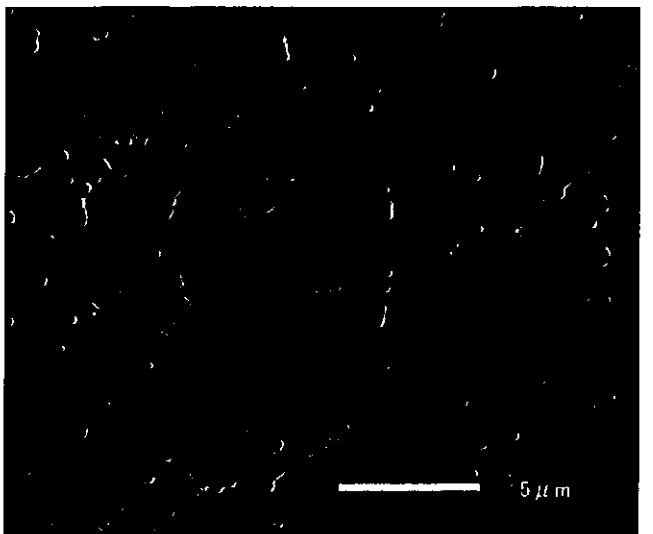
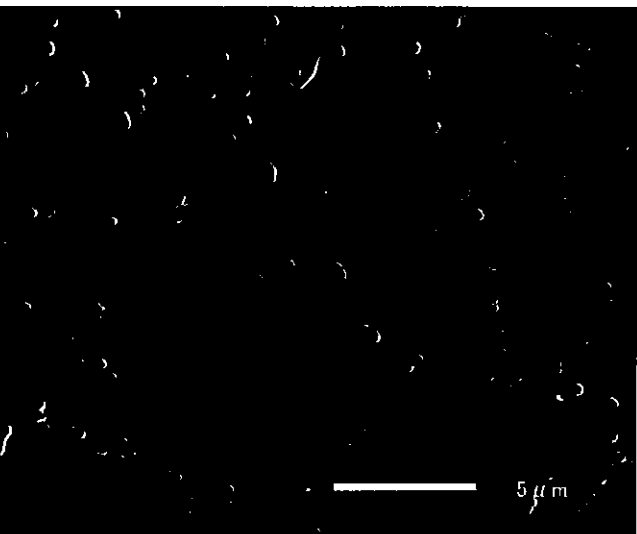
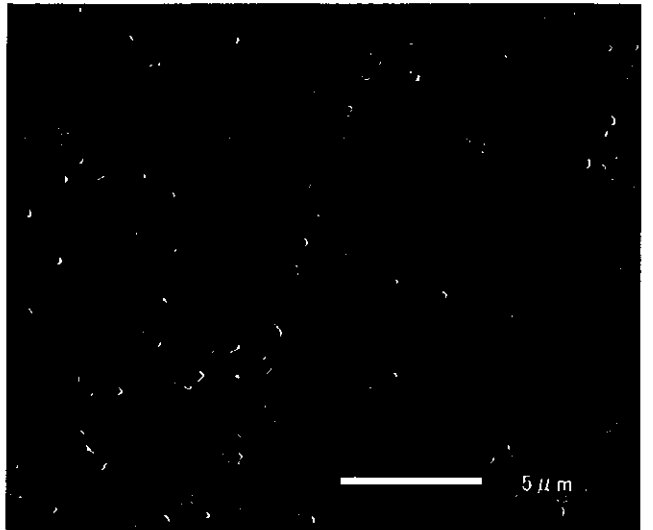
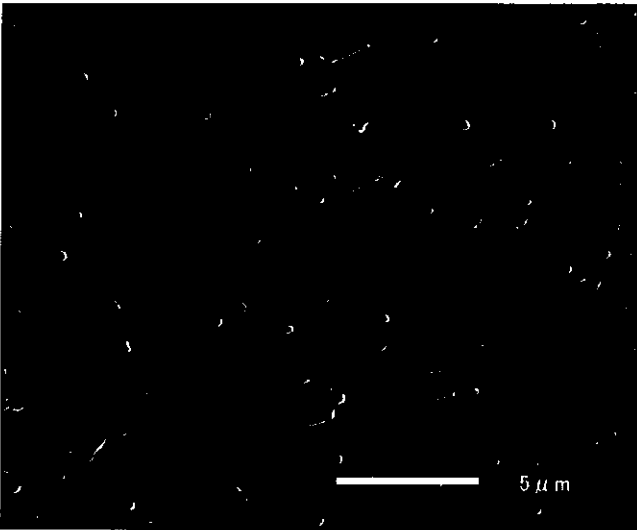
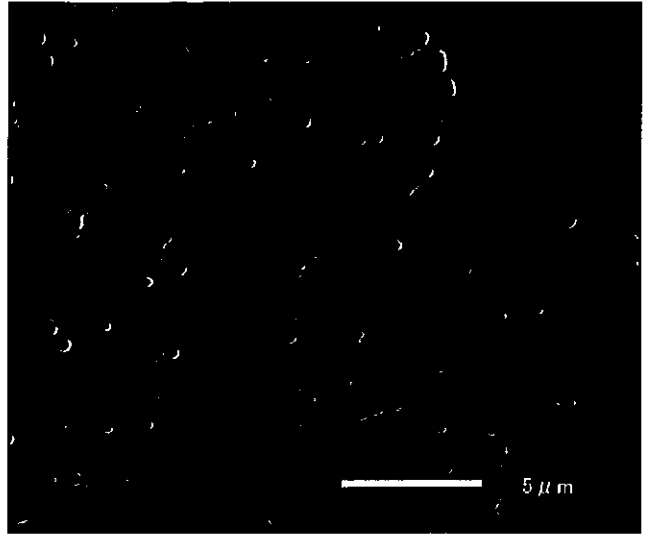
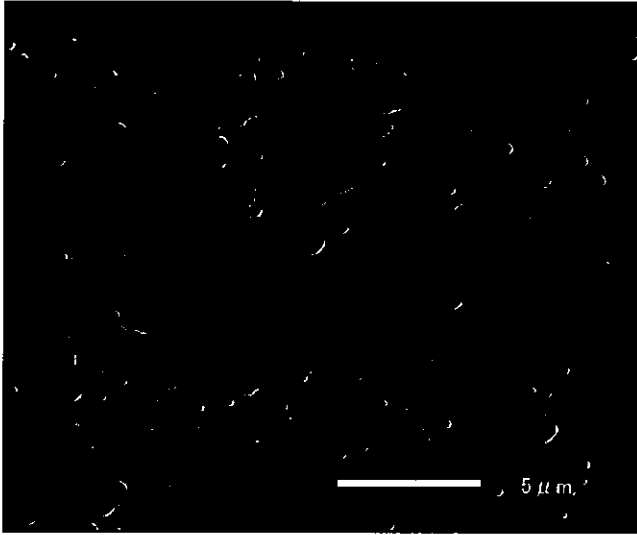
X112

Photo II-9-8 SEM(Scanning electron microscope) observation
RH Outlet Header(Circumferential weld at right side, front : Weld metal)



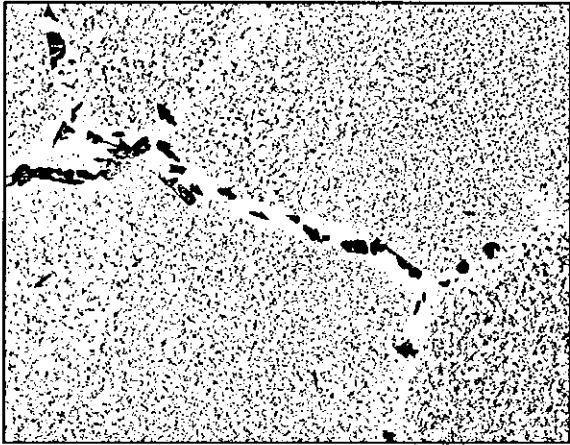
503

Photo II-9-9 Precipitates along grain boundary by SEM observation
RH Outlet Header (Circumferential weld at right side, front : Base metal)

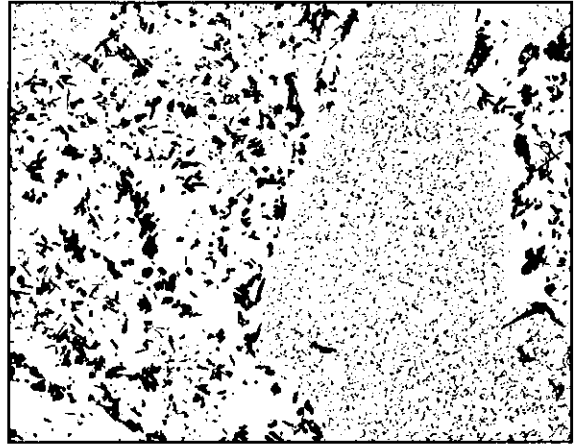


⑥
R

Photo II-9-10 Precipitates along grain boundary by SEM observation
RH Outlet Header (Circumferential weld at right side, front : Fine grain HAZ)



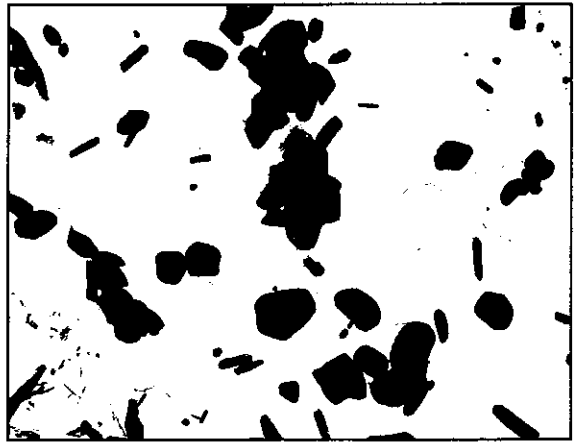
5 μ m



5 μ m



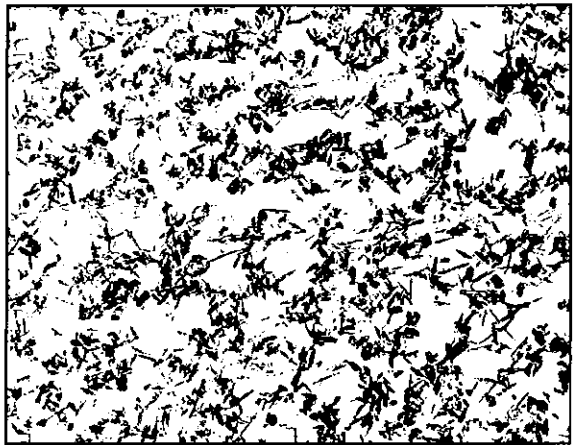
1 μ m



1 μ m

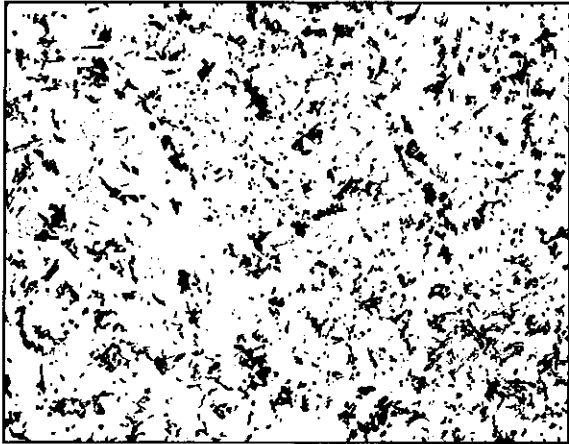


1 μ m

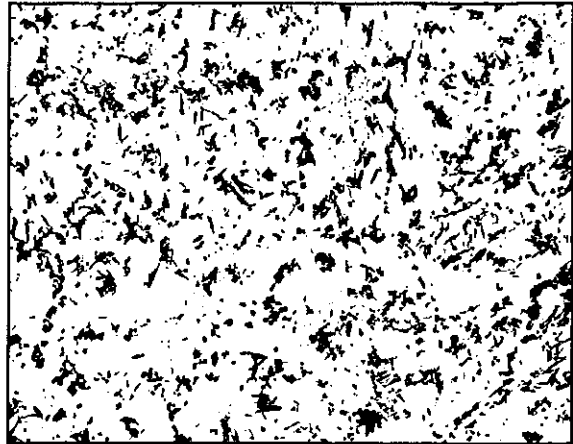


1 μ m

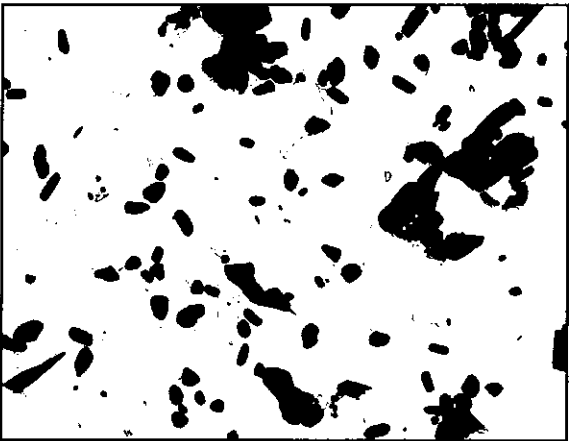
Photo II-9-11 Precipitates by TEM (Transmission electron microscope) observation
RH Outlet Header (Circumferential weld at right side, front : Base metal)



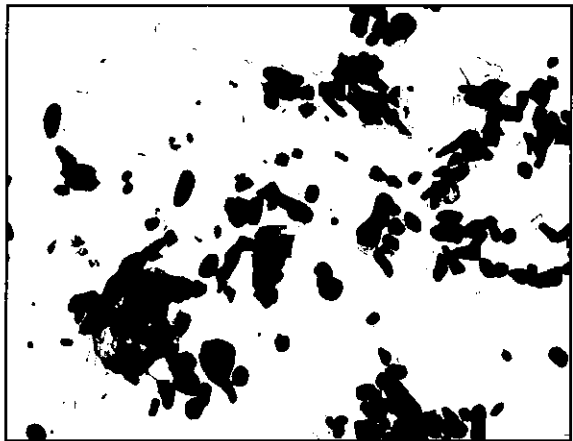
5 μm



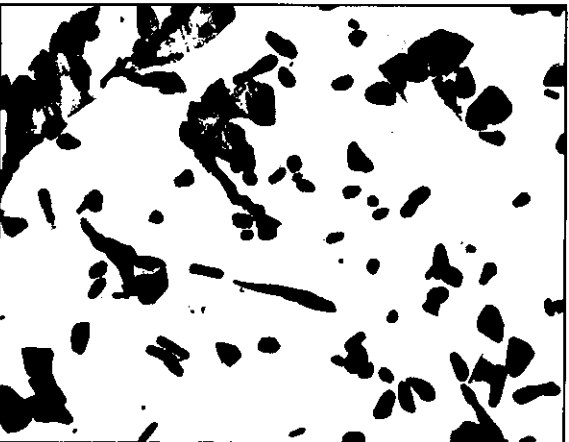
5 μm



1 μm



1 μm



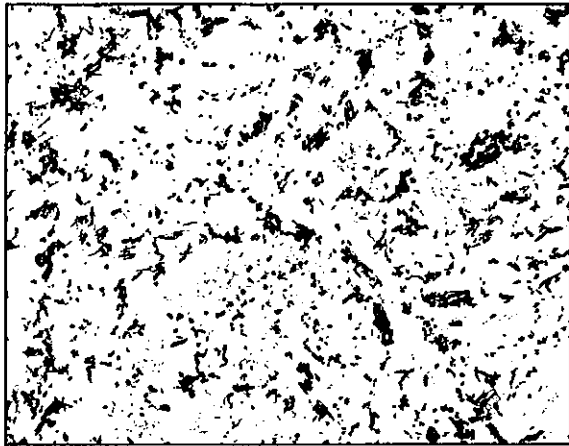
1 μm



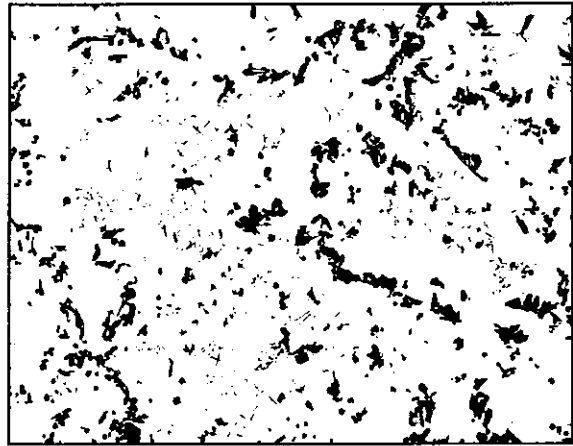
1 μm

906

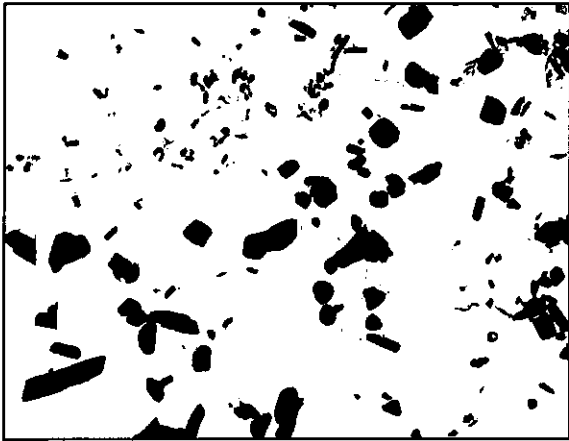
Photo II-9-12 Precipitates by TEM (Transmission electron microscope) observation
RH Outlet Header (Circumferential weld at right side, front : Fine grain HAZ)



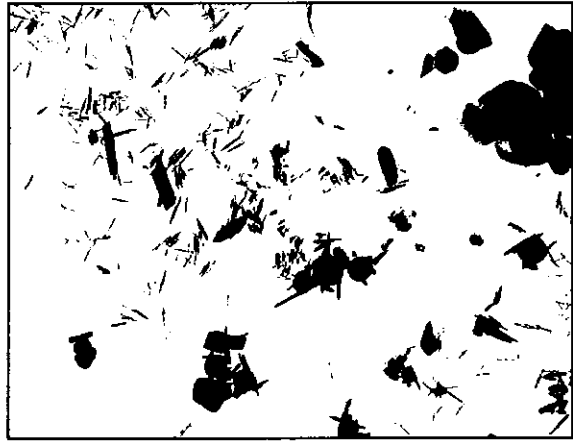
5 μm



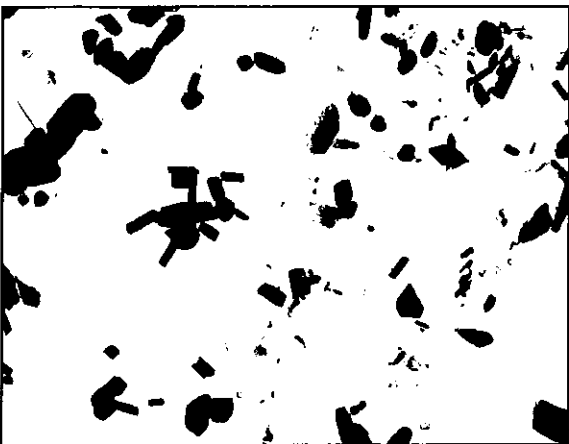
5 μm



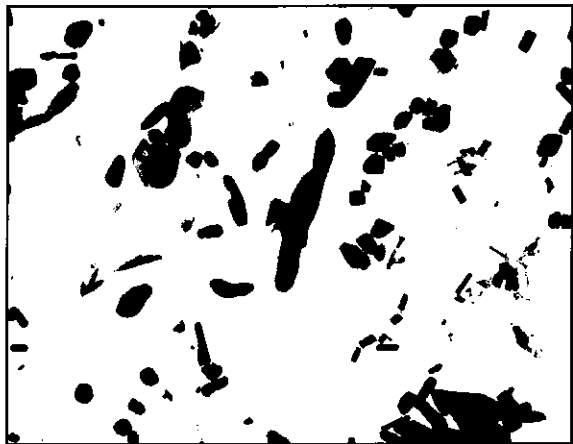
1 μm



1 μm



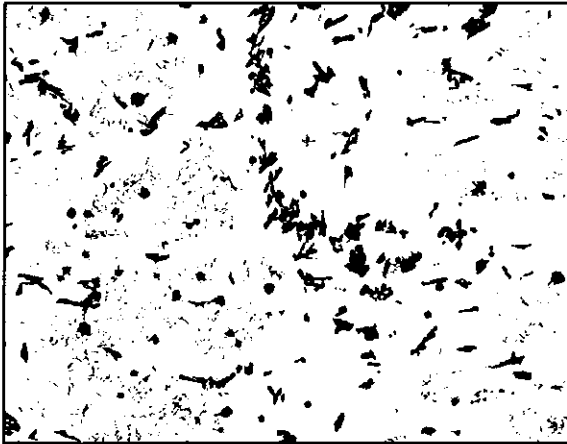
1 μm



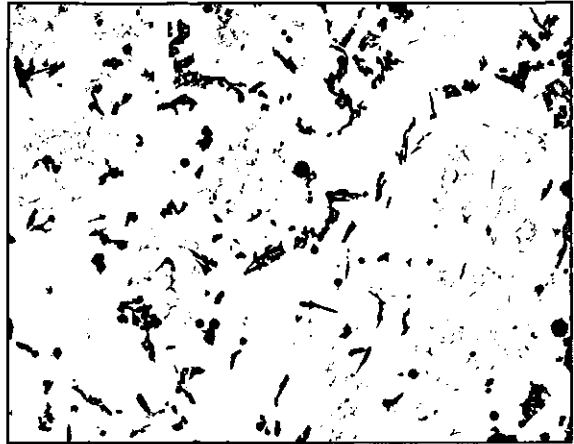
1 μm

Photo II-9-13 Precipitates by TEM (Transmission electron microscope) observation
RH Outlet Header (Circumferential weld at right side, front : Coarse grain HAZ)

807



5 μm



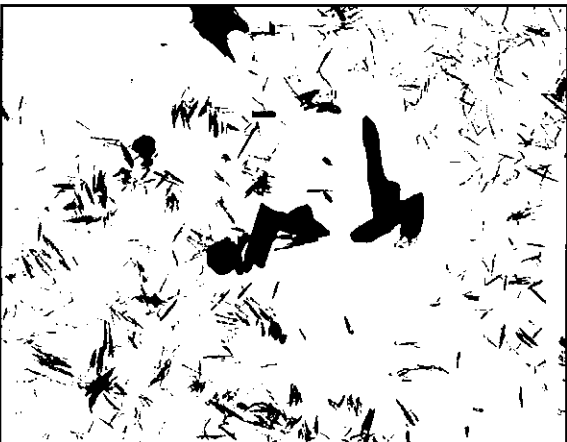
5 μm



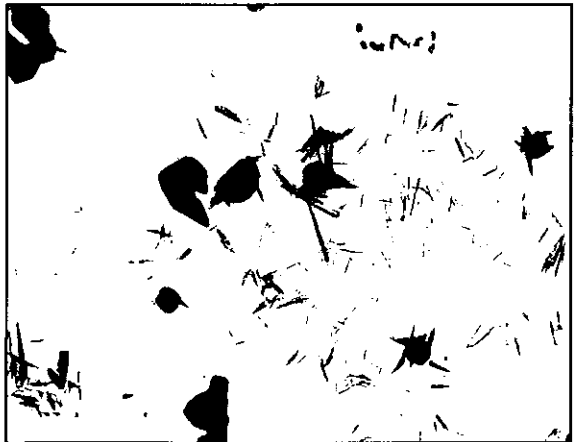
1 μm



1 μm



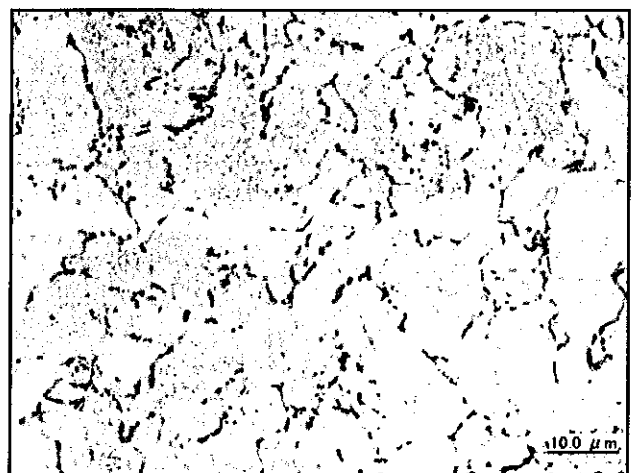
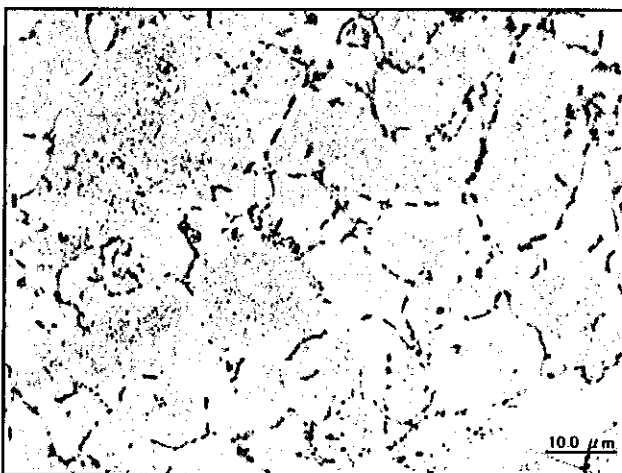
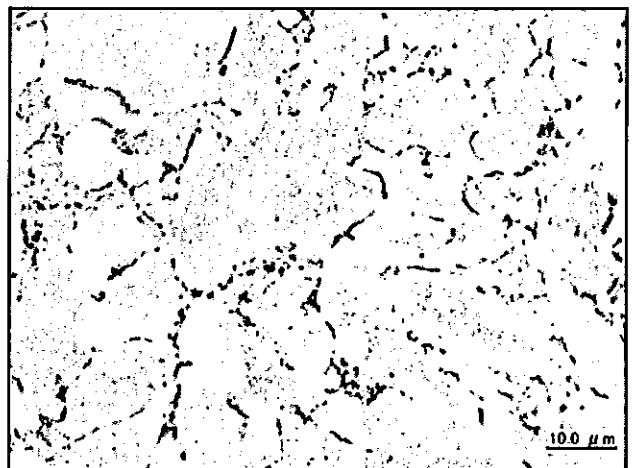
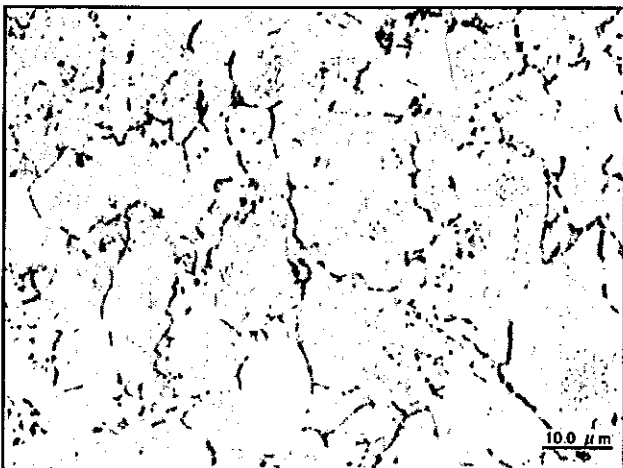
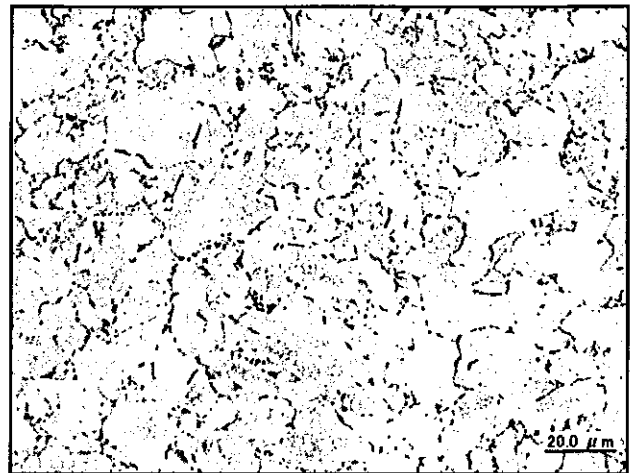
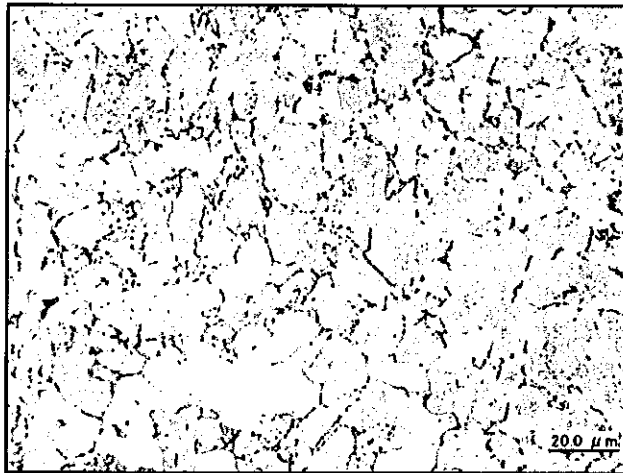
1 μm



1 μm

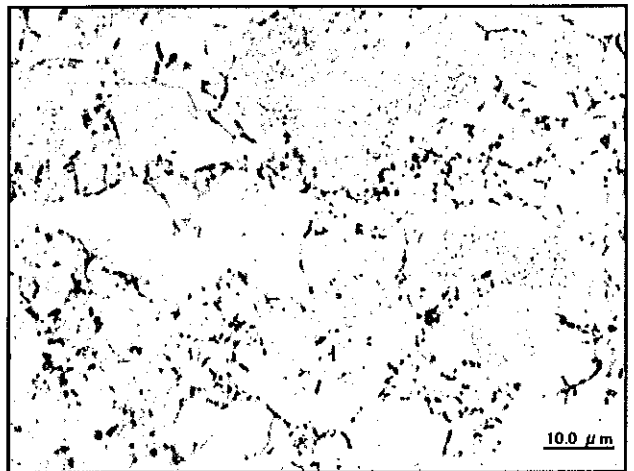
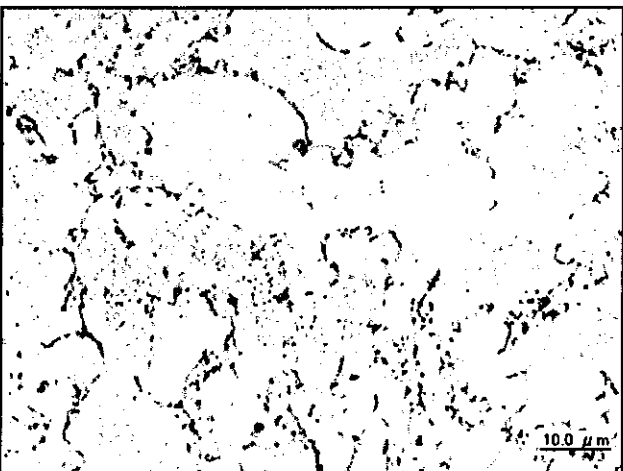
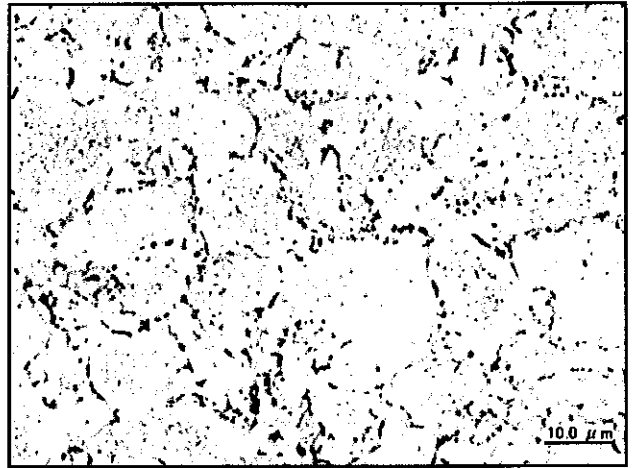
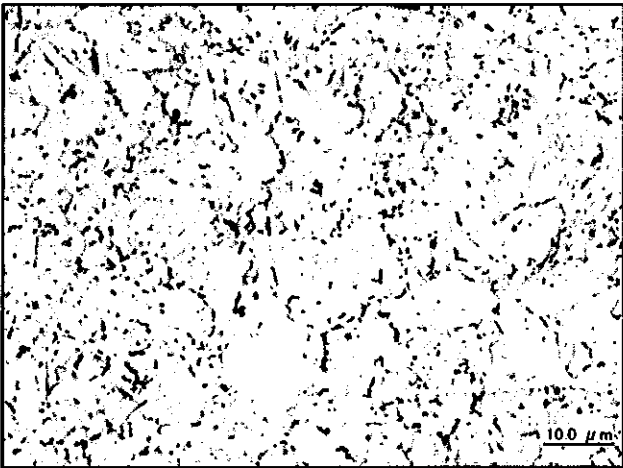
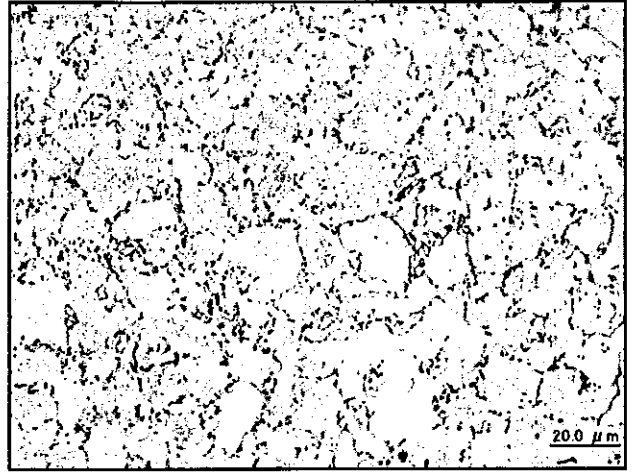
207

Photo II-9-14 Precipitates by TEM (Transmission electron microscope) observation
RH Outlet Header (Circumferential weld at right side, front : Weld metal)



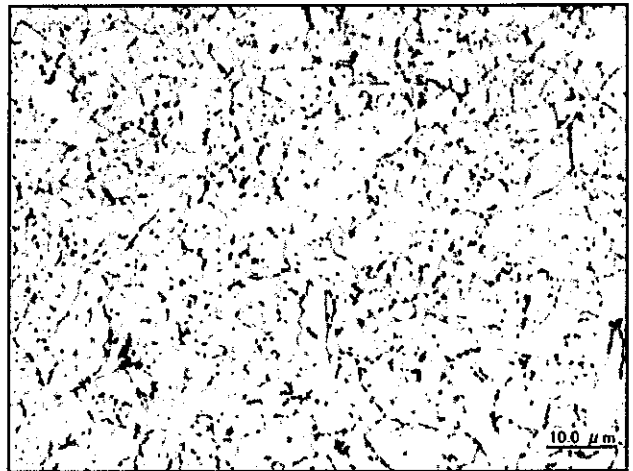
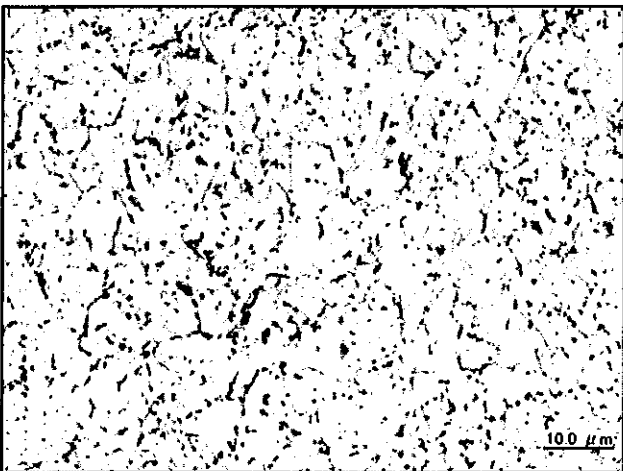
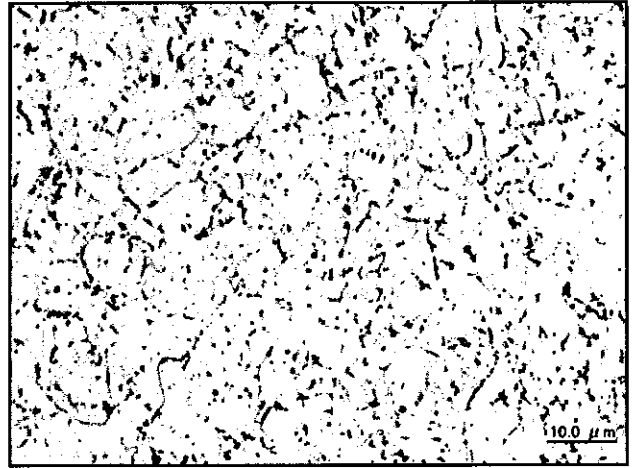
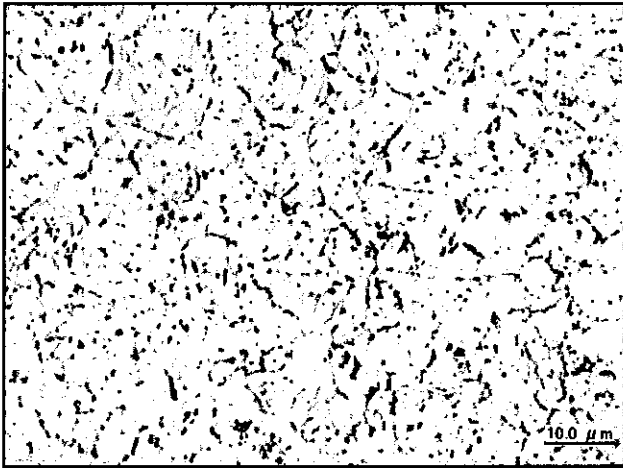
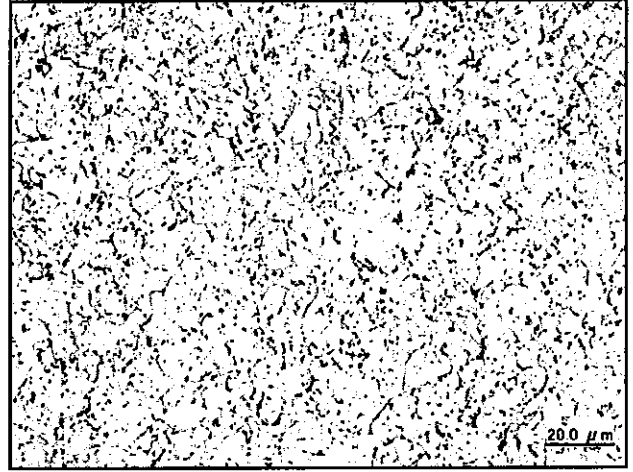
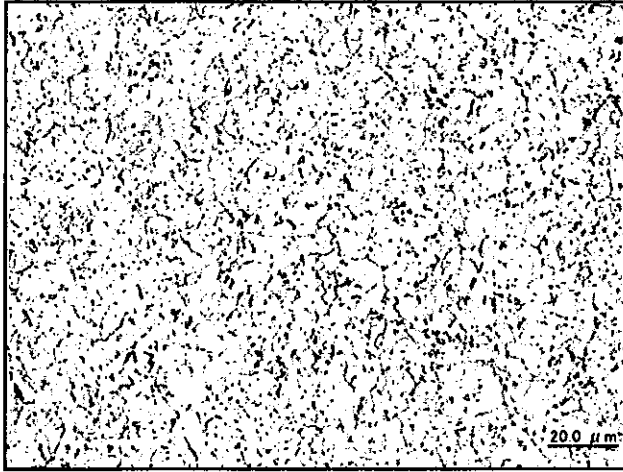
65

Photo II-10-1 Microstructure observation
Main Steam Pipe-Right (Circumferential weld, intrados : Base metal)



008

Photo II-10-2 Microstructure observation
Main Steam Pipe-Right (Circumferential weld, intrados : Intercritical zone)



151

Photo II-10-3 Microstructure observation
Main Steam Pipe-Right (Circumferential weld, intrados : Fine grain HAZ)

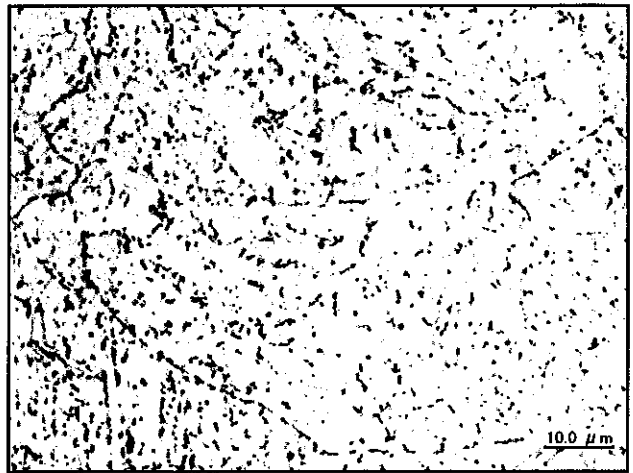
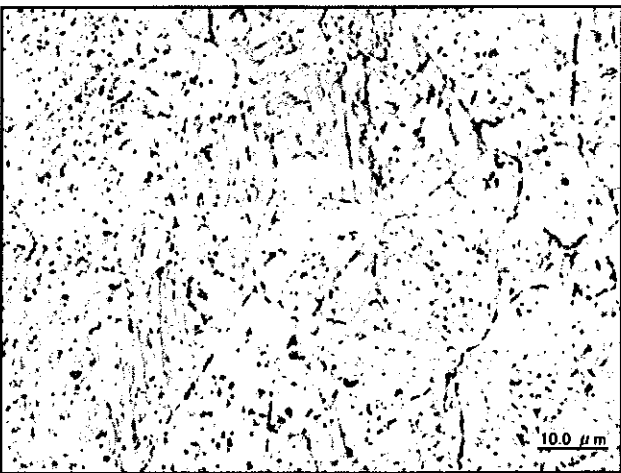
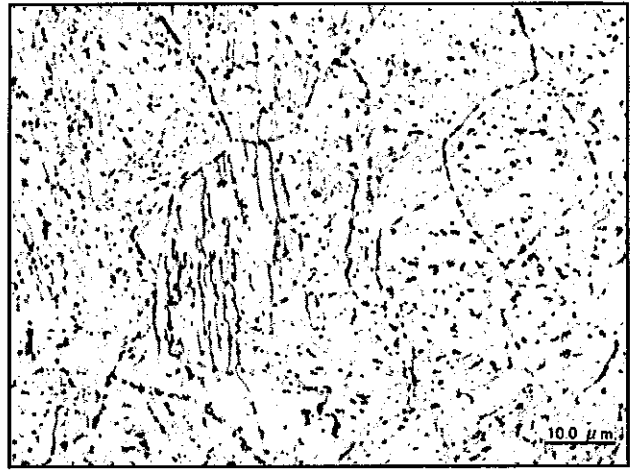
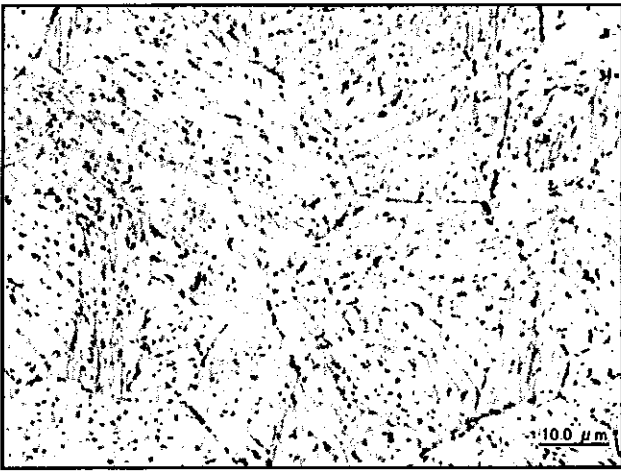
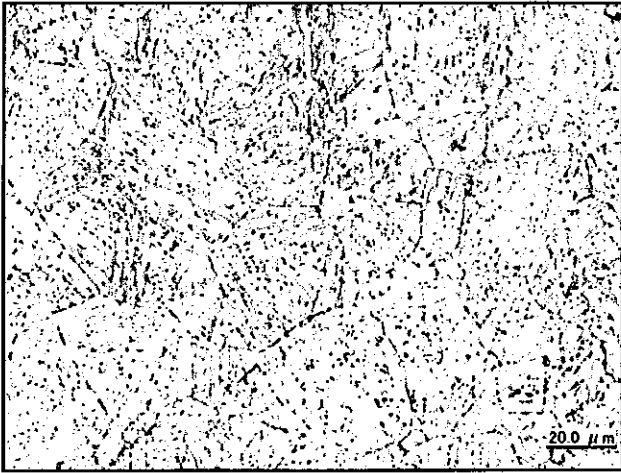


Photo II-10-4 Microstructure observation
Main Steam Pipe-Right (Circumferential weld, intrados : Coarse grain HAZ)

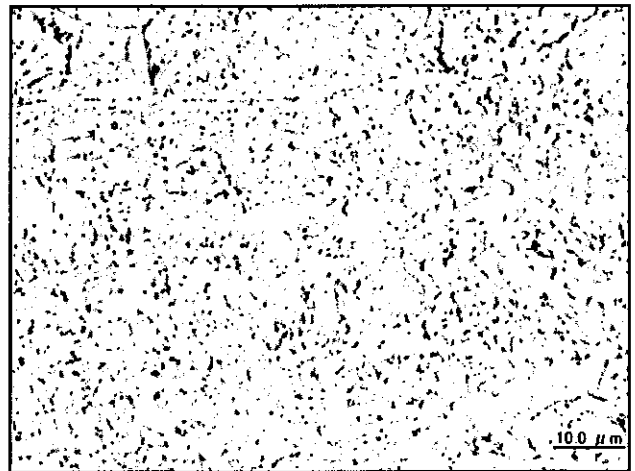
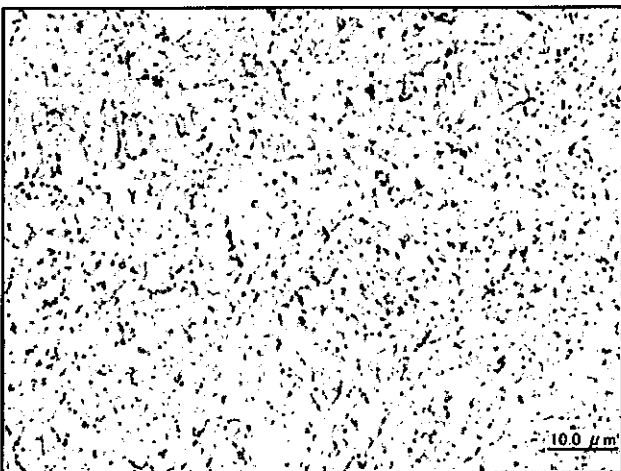
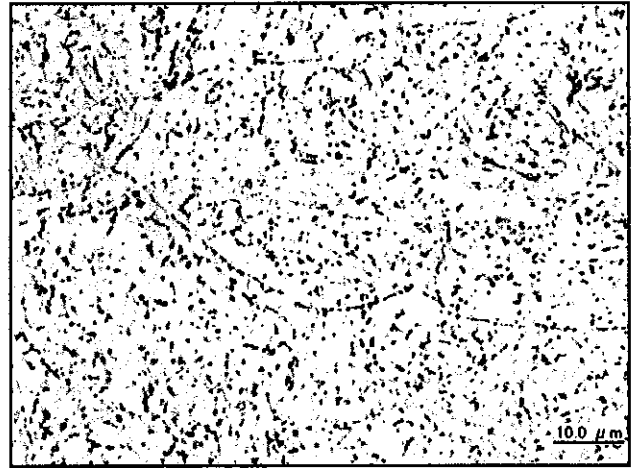
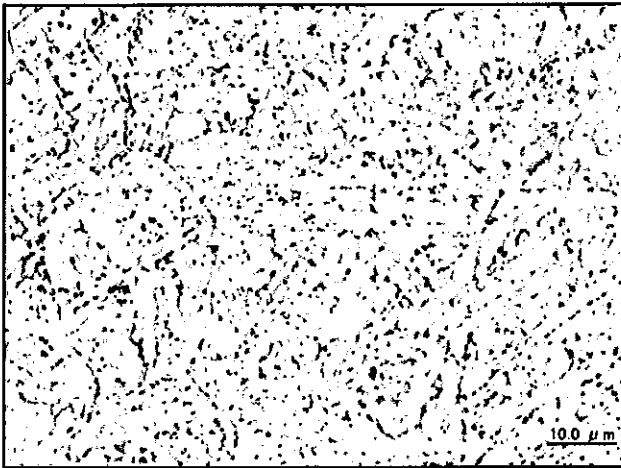
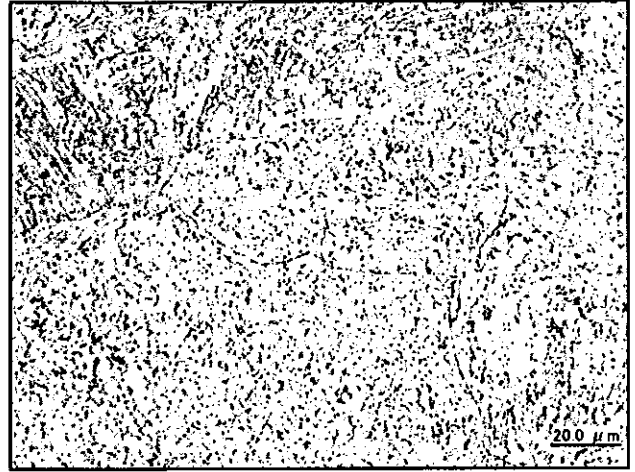
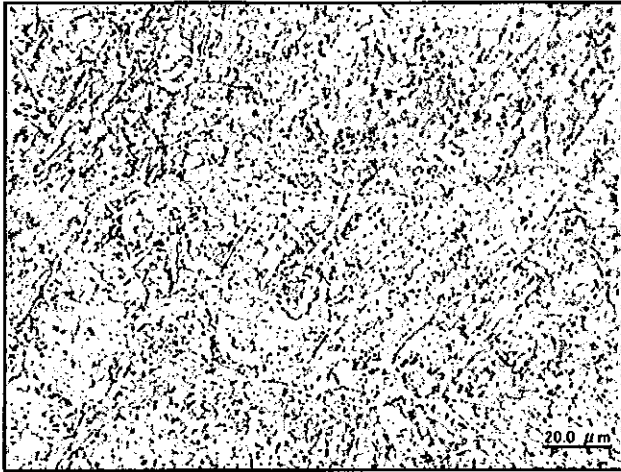


Photo II-10-5 Microstructure observation
Main Steam Pipe-Right (Circumferential weld, intrados : Weld metal)

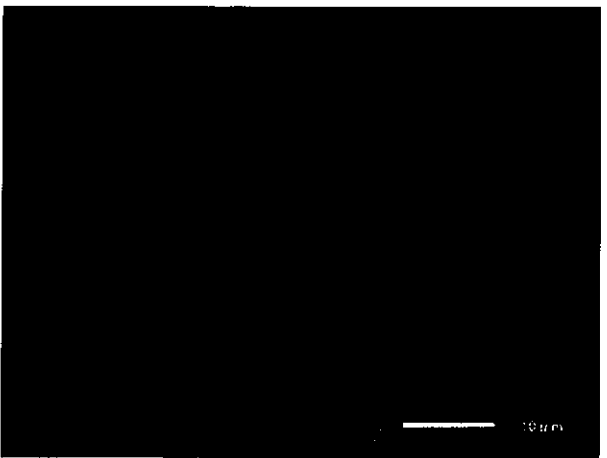
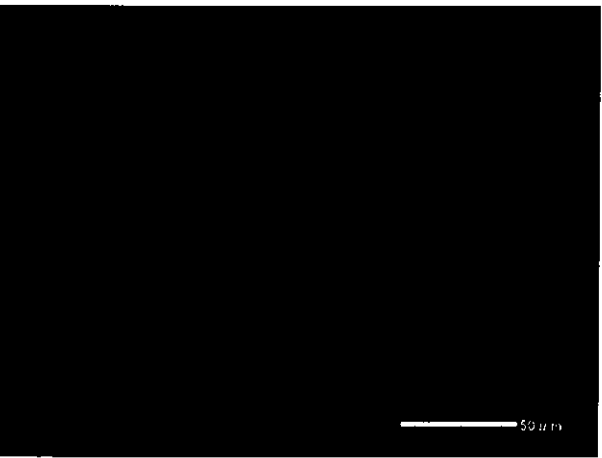
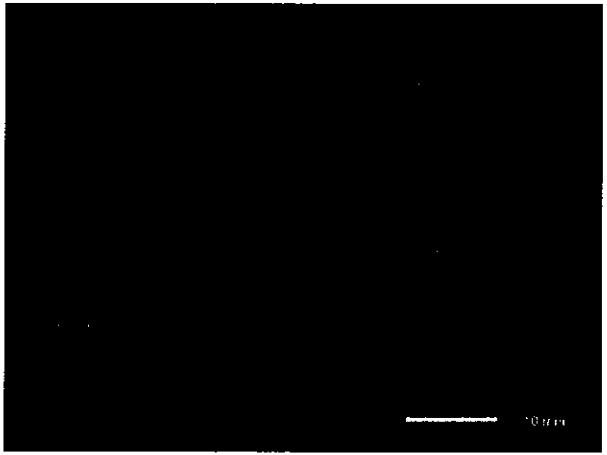
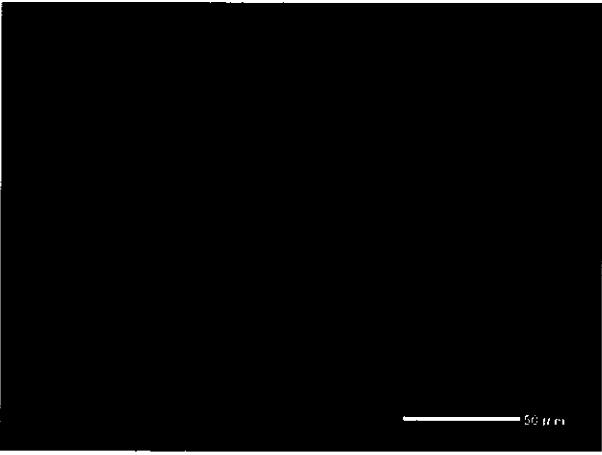
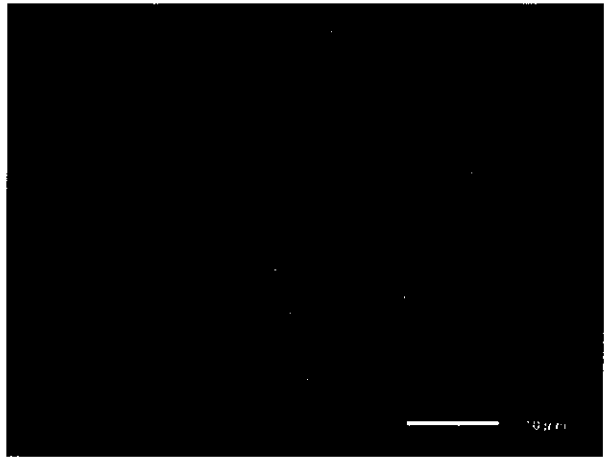
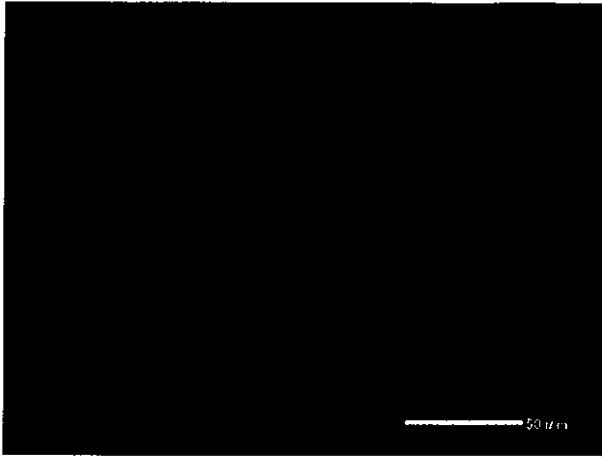


Photo II-10-6 SEM(Scanning electron microscope) observation
Main Steam Pipe-Right(Circumferential weld, intrados : Fine grain HAZ)

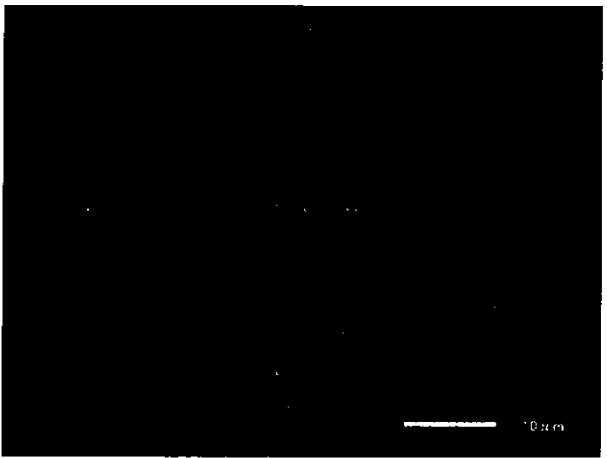
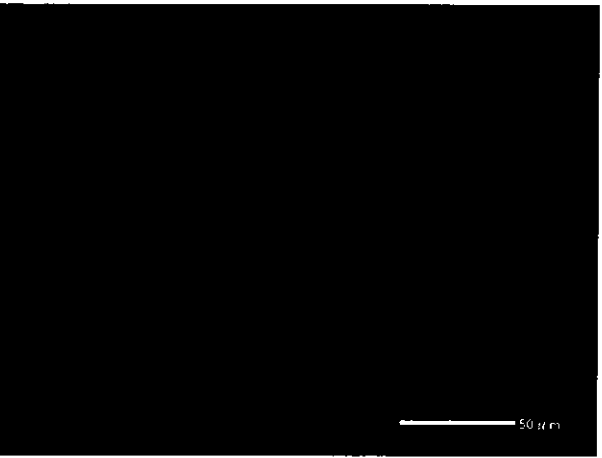
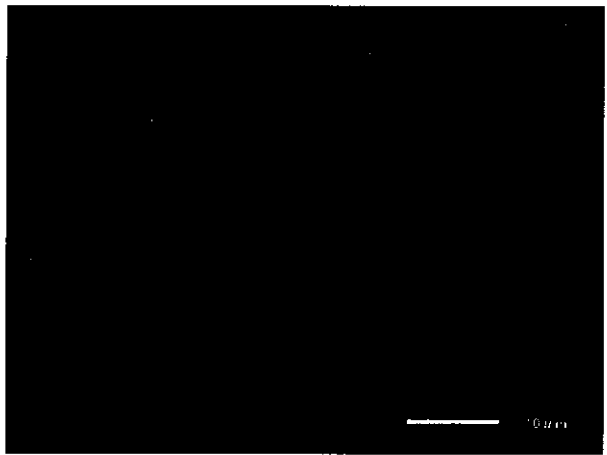
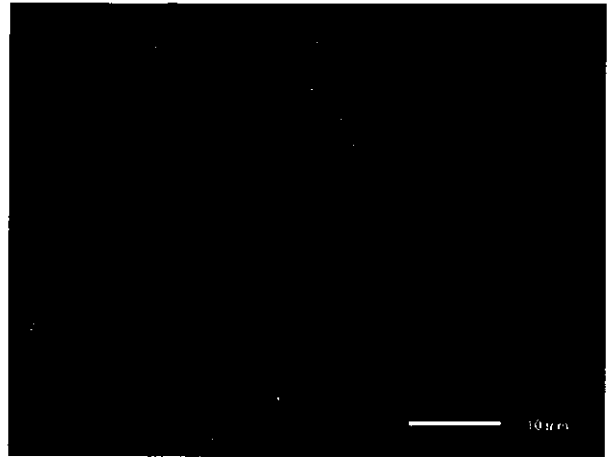
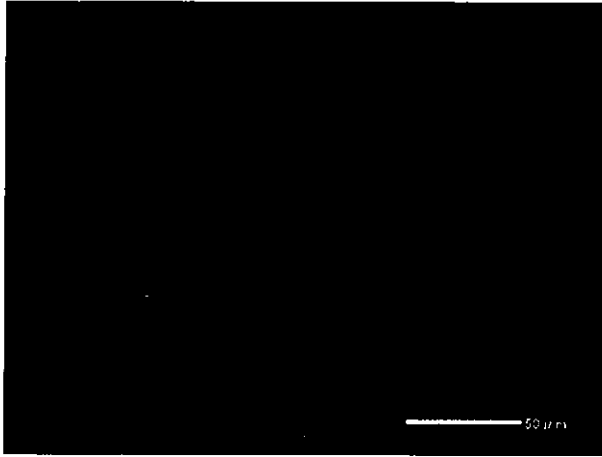


Photo II-10-7 SEM (Scanning electron microscope) observation
Main Steam Pipe-Right (Circumferential weld, intrados : Coarse grain HAZ)

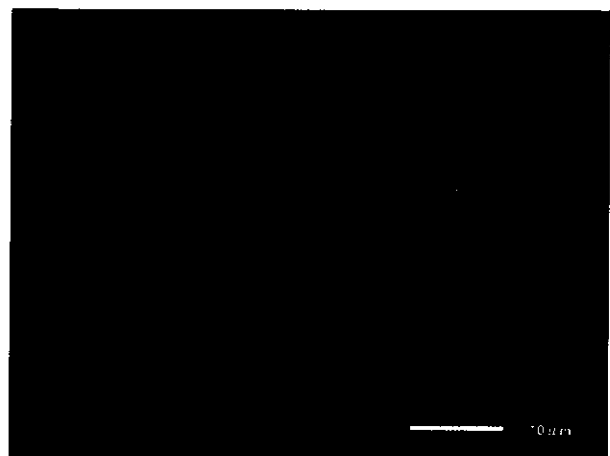
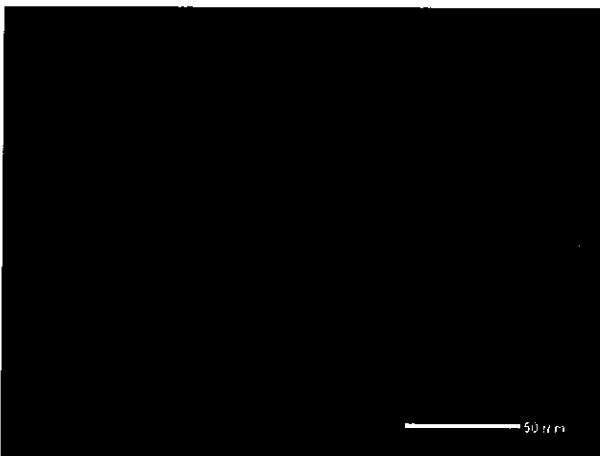
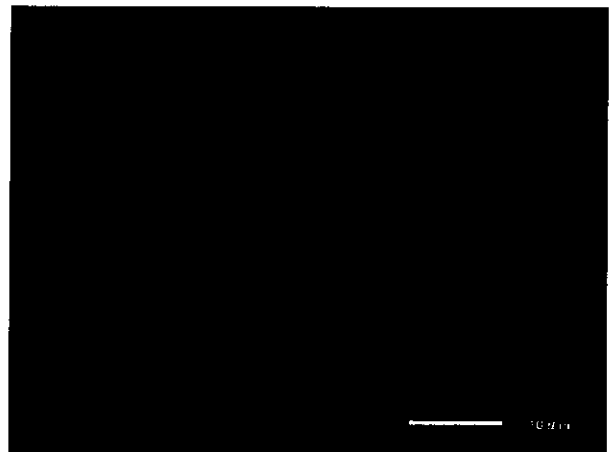
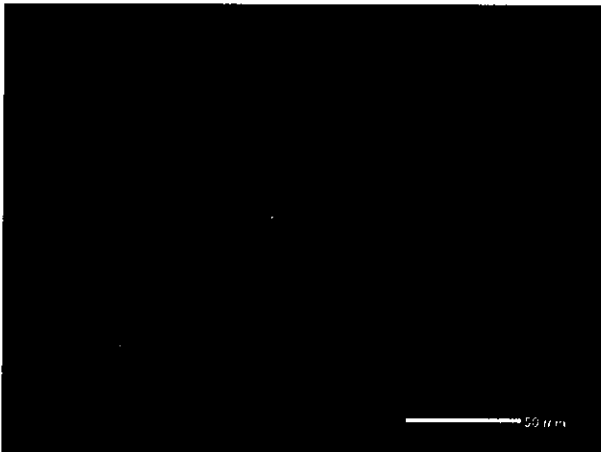
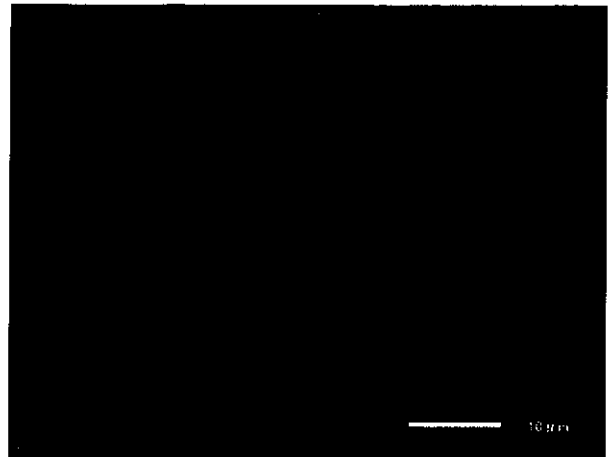
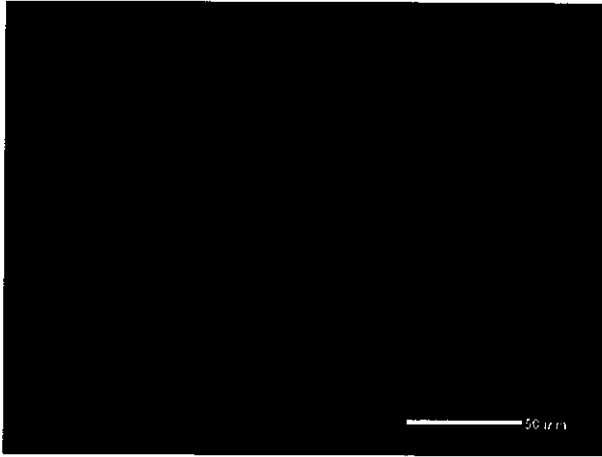


Photo II-10-8 SEM(Scanning electron microscope) observation
Main Steam Pipe-Right(Circumferential weld, intrados : Weld metal)

906

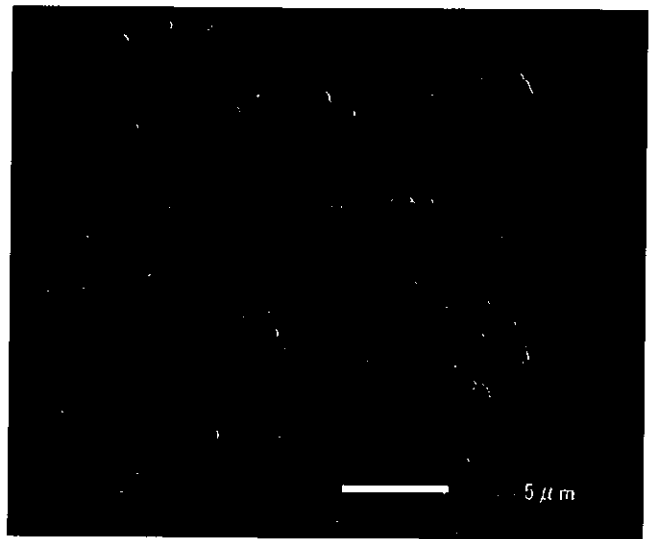
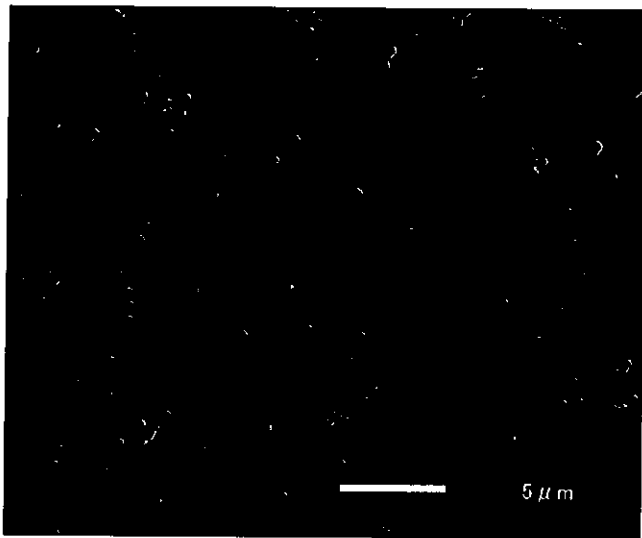
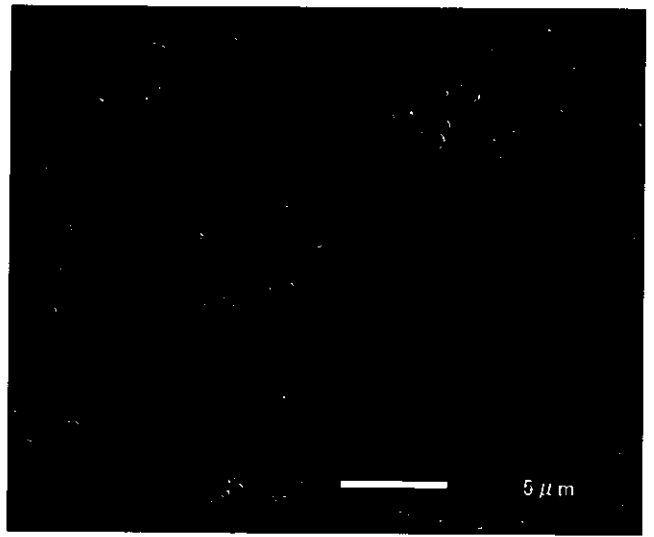
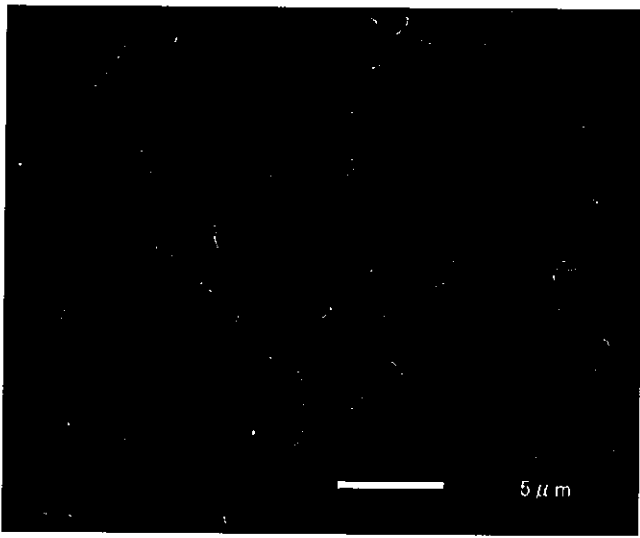
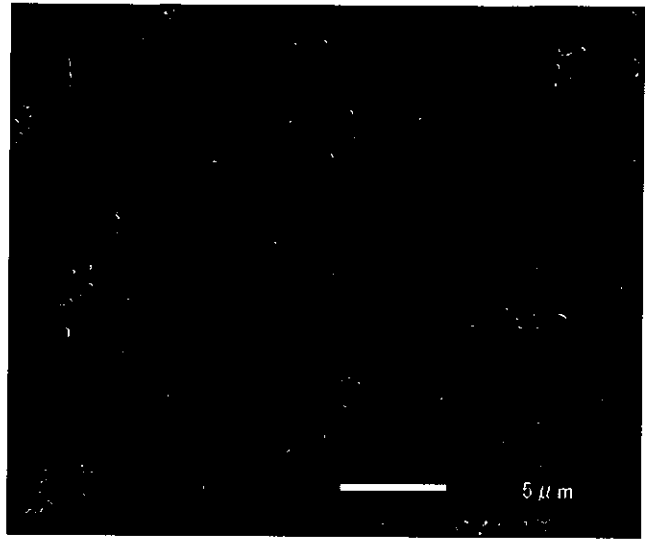
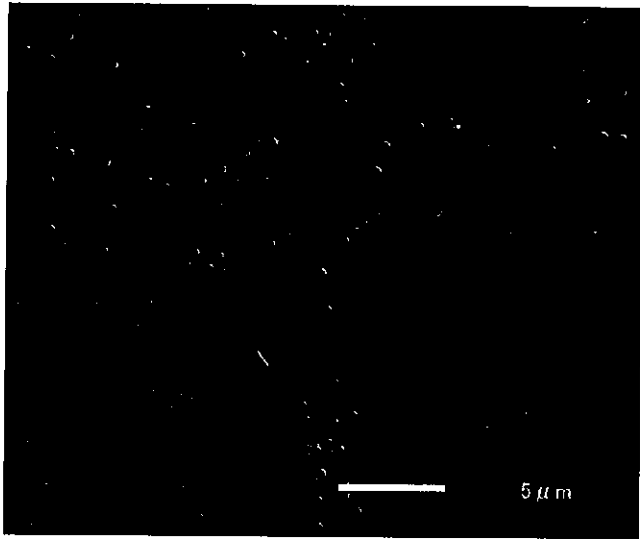


Photo II-10-9 Precipitates along grain boundary by SEM observation
Main Steam Pipe-Right (Circumferential weld, intrados : Base metal)

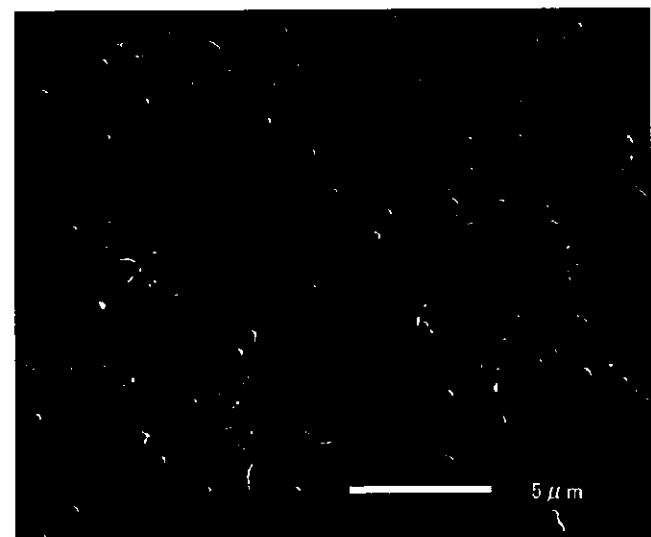
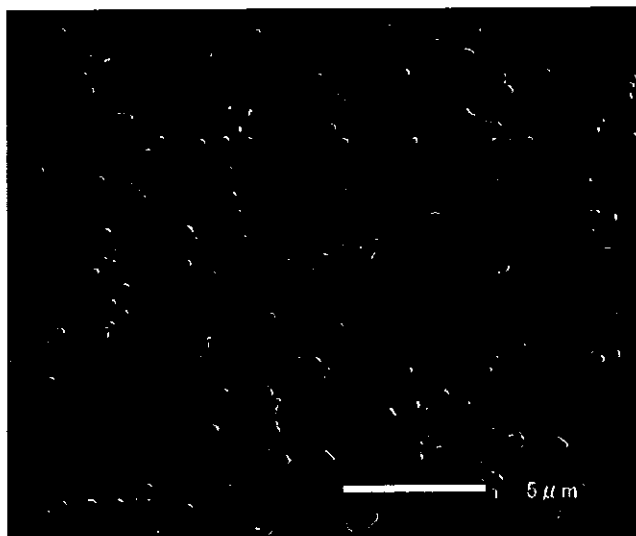
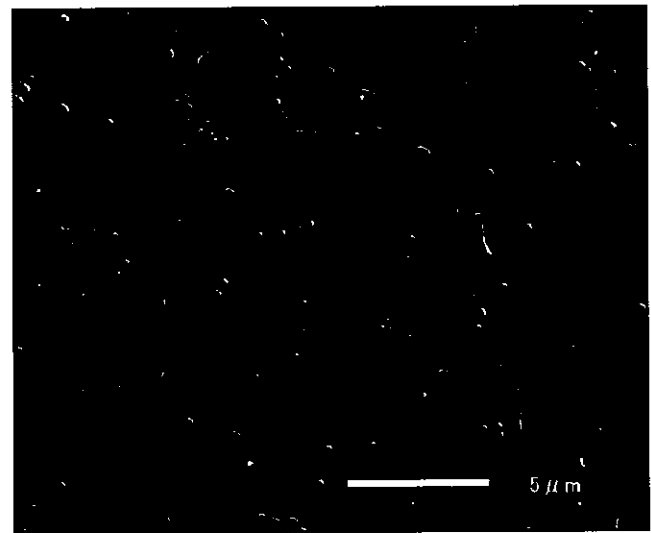
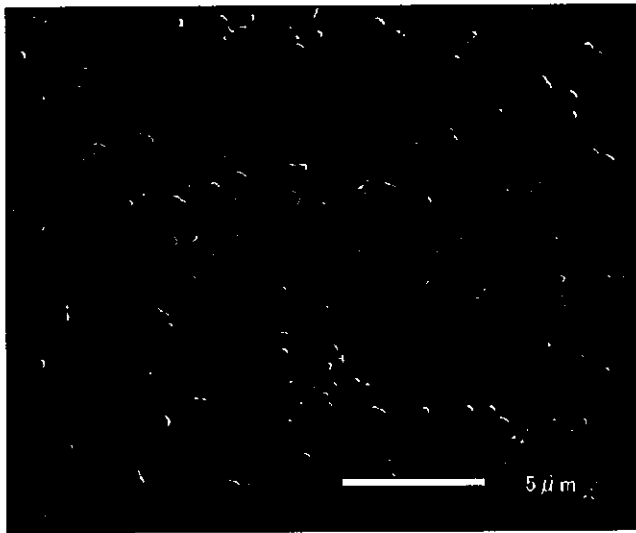
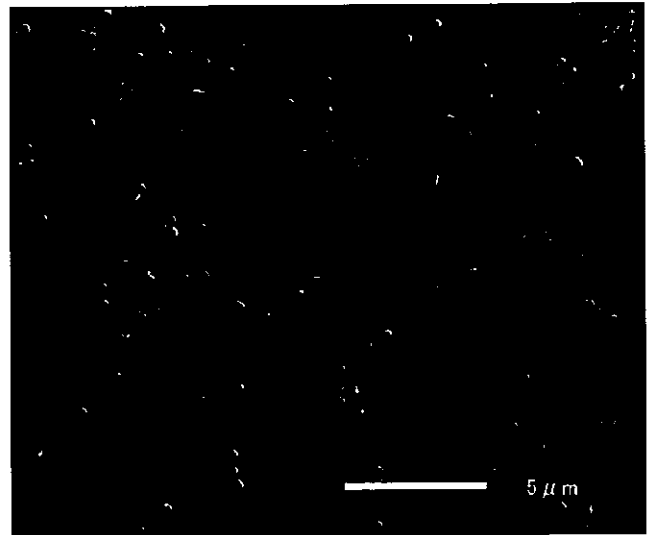
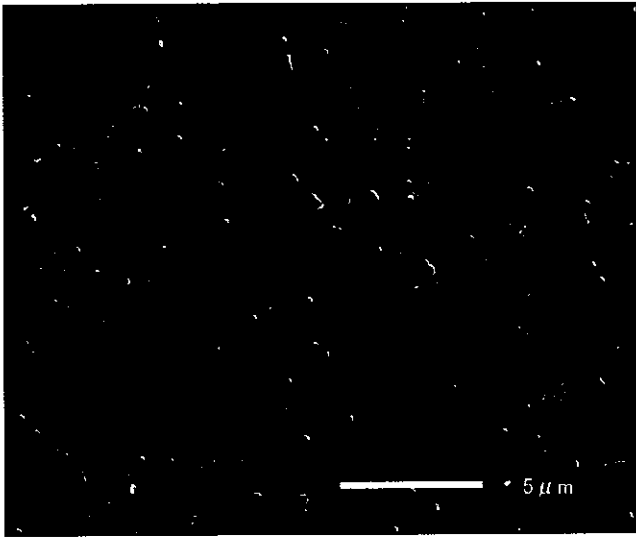
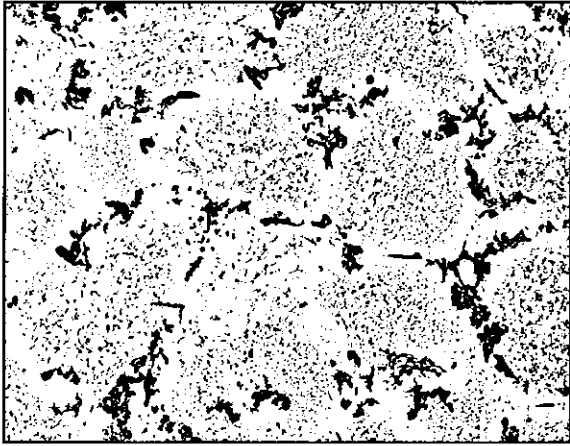
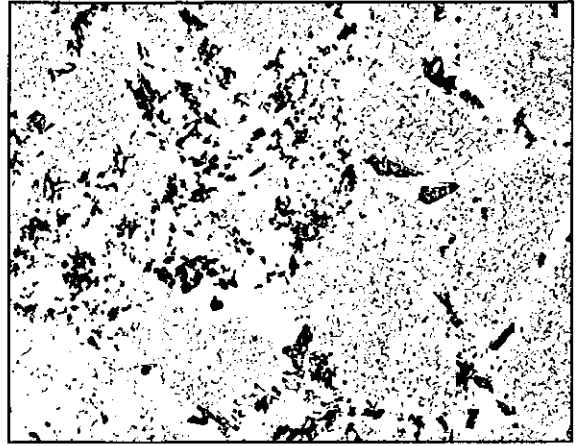


Photo II-10-10 Precipitates along grain boundary by SEM observation
Main Steam Pipe-Right (Circumferential weld, intrados : Fine grain HAZ)

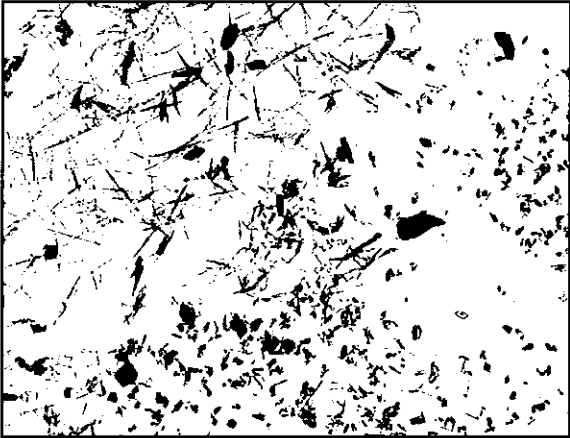
357



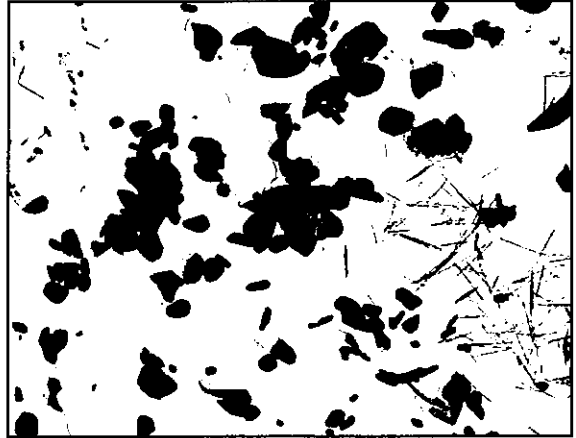
5 μ m



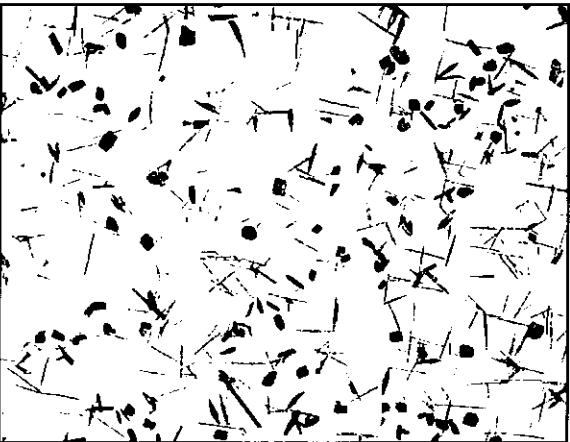
5 μ m



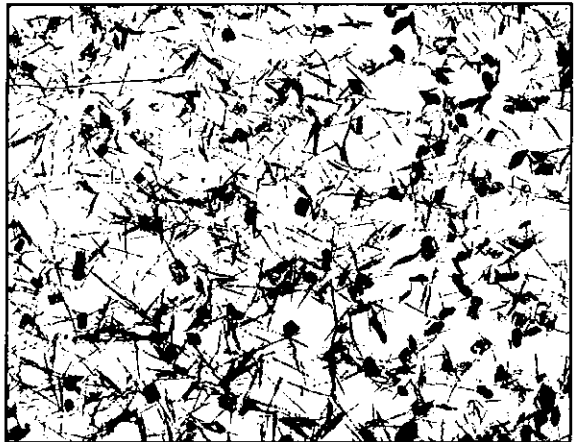
1 μ m



1 μ m

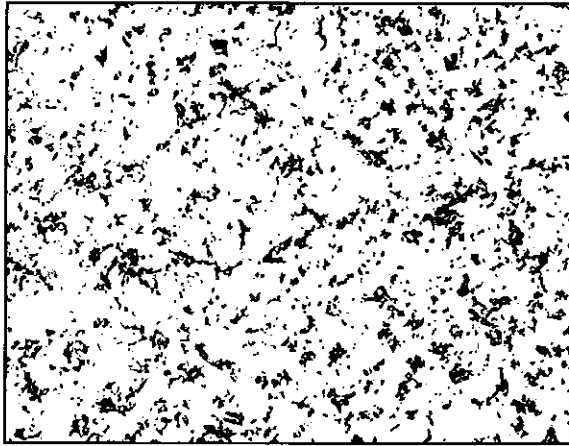


1 μ m

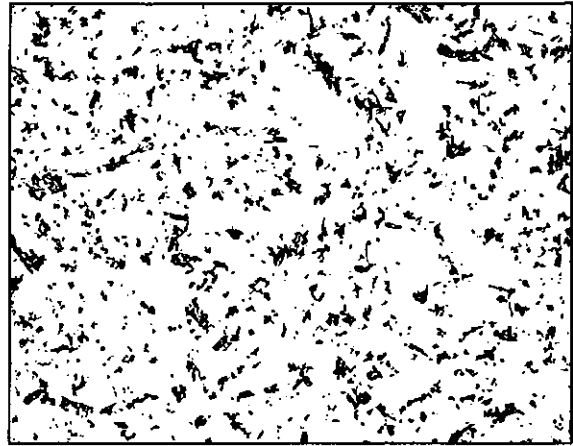


1 μ m

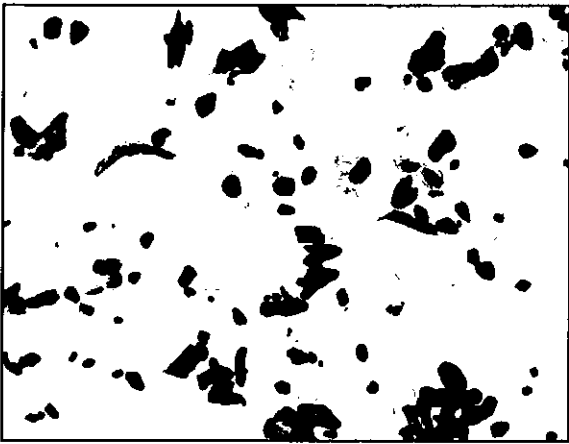
Photo II-10-11 Precipitates by TEM (Transmission electron microscope) observation
Main Steam Pipe-Right (Circumferential weld, intrados : Base metal)



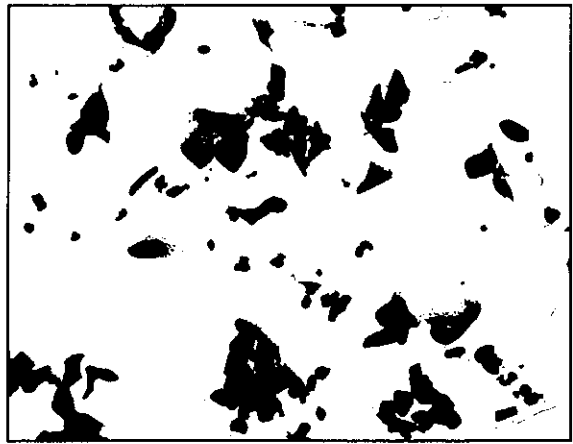
5 μm



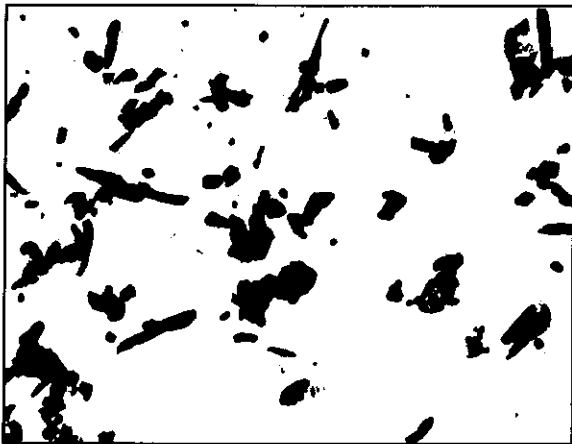
5 μm



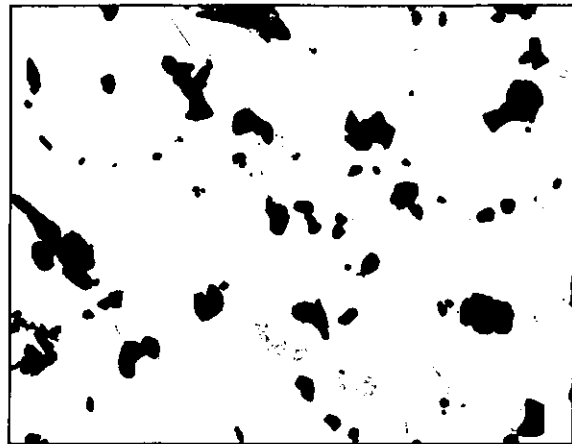
1 μm



1 μm



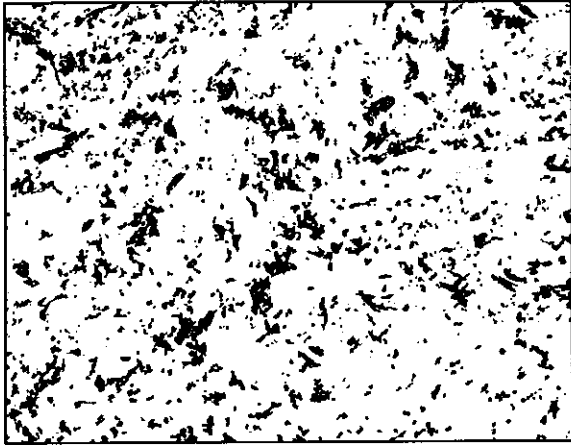
1 μm



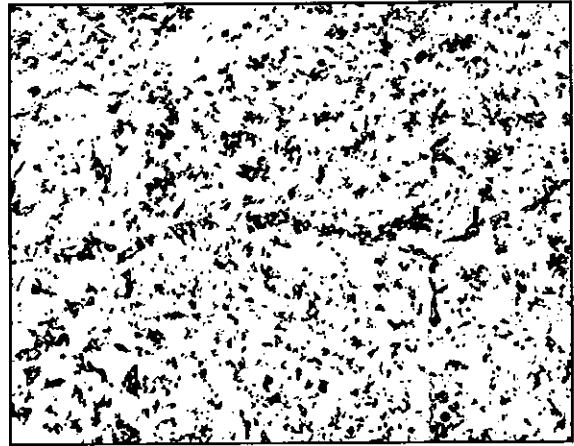
1 μm

Photo II-10-12 Precipitates by TEM (Transmission electron microscope) observation
Main Steam Pipe-Right (Circumferential weld, intrados : Fine grain HAZ)

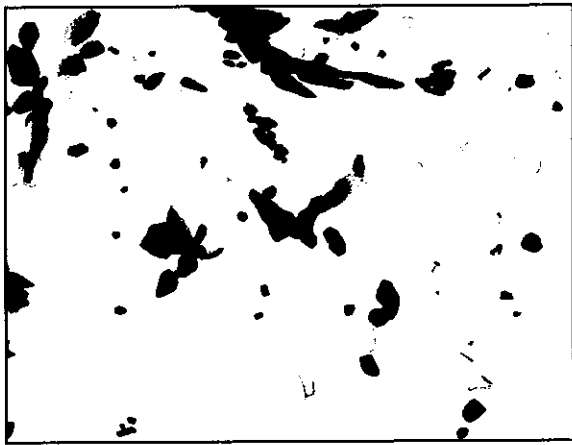
058



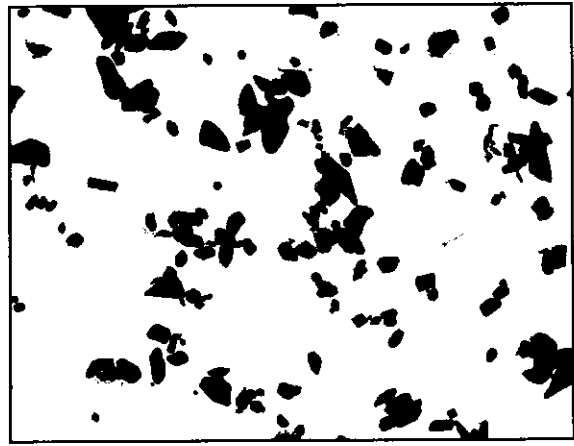
5 μ m



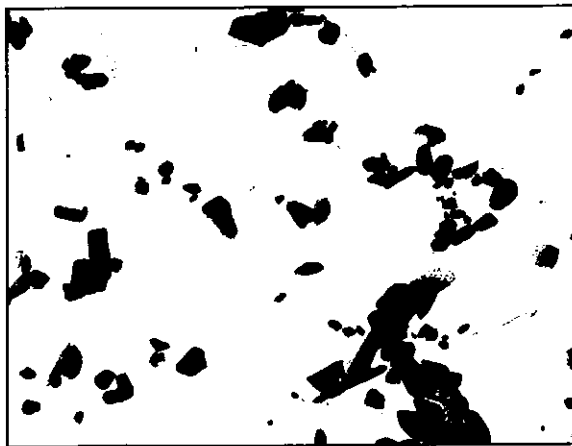
5 μ m



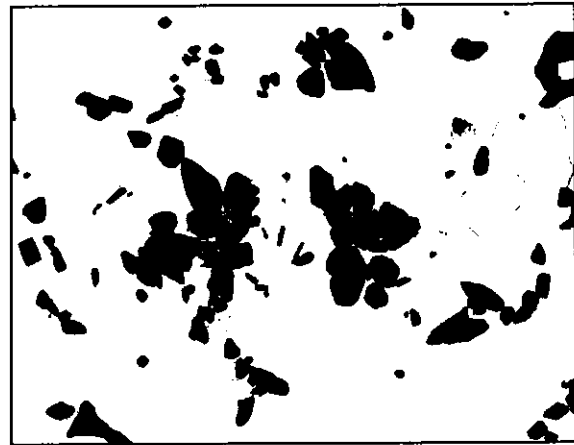
1 μ m



1 μ m

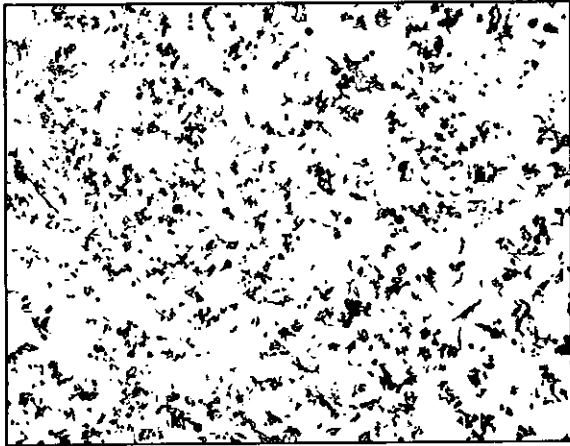


1 μ m

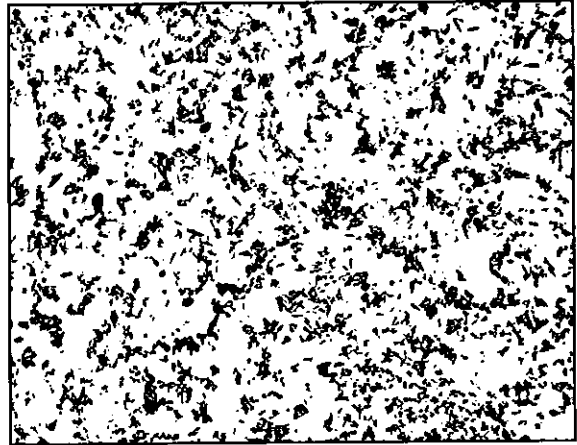


1 μ m

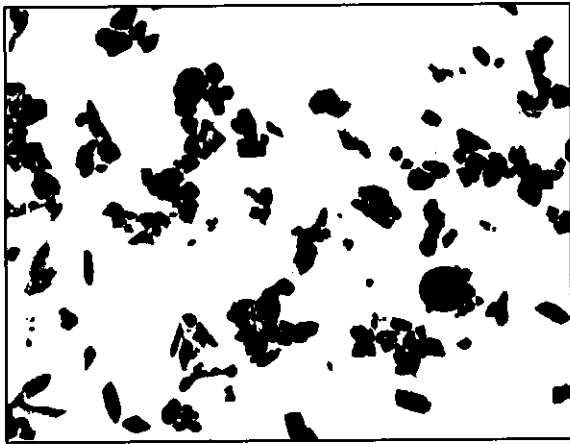
Photo II-10-13 Precipitates by TEM (Transmission electron microscope) observation
Main Steam Pipe-Right (Circumferential weld, intrados : Coarse grain HAZ)



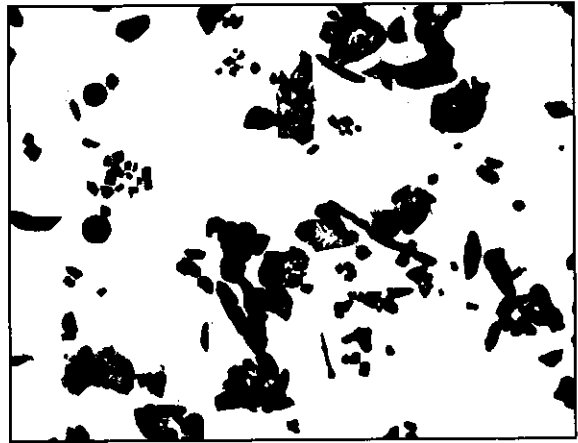
5 μm



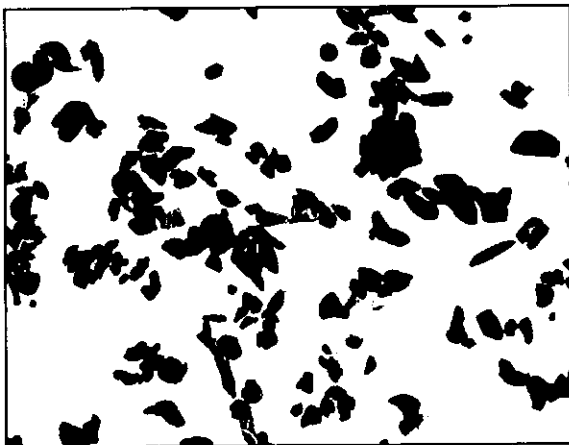
5 μm



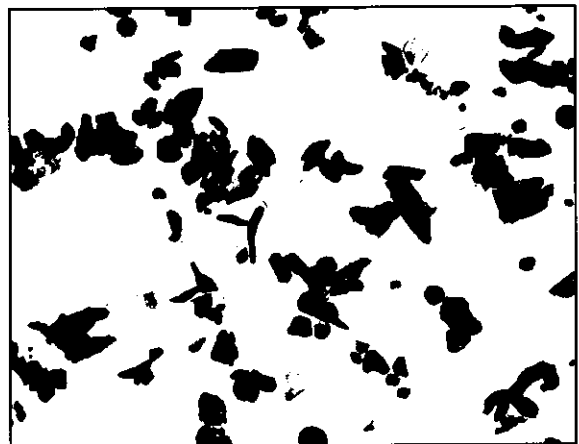
1 μm



1 μm



1 μm



1 μm

Photo II-10-14 Precipitates by TEM (Transmission electron microscope) observation
Main Steam Pipe-Right (Circumferential weld, intrados : Weld metal)

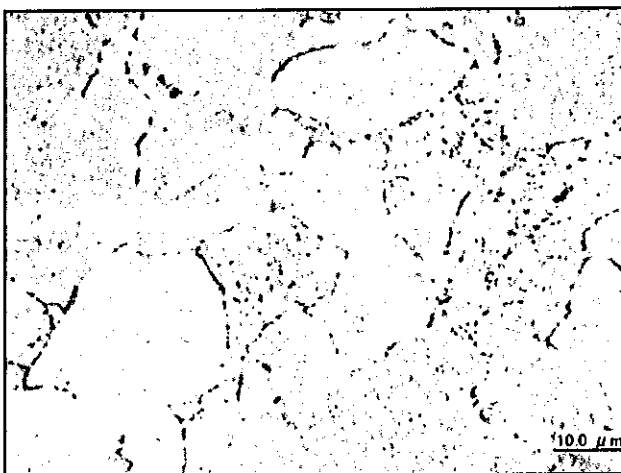
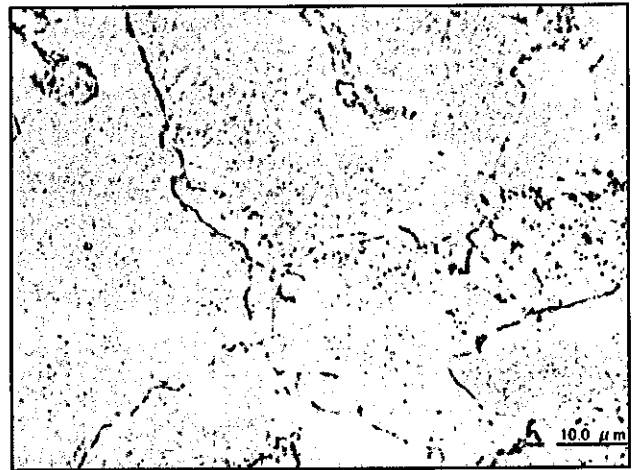
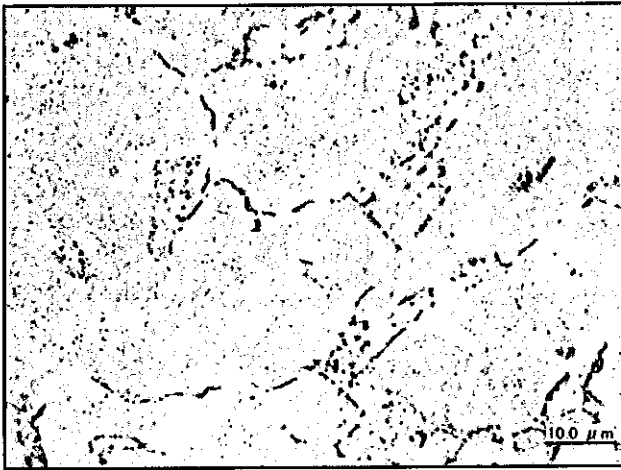
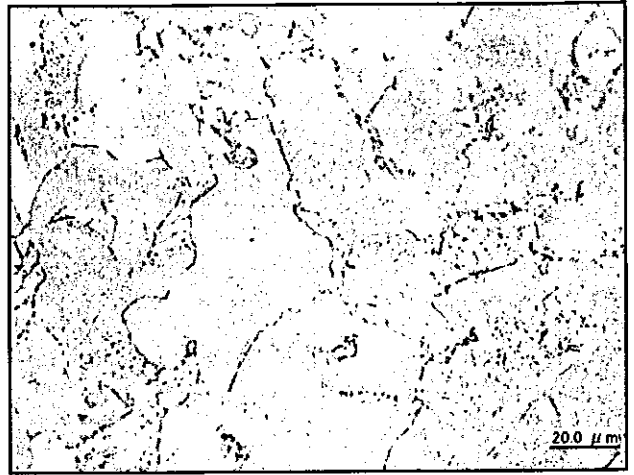
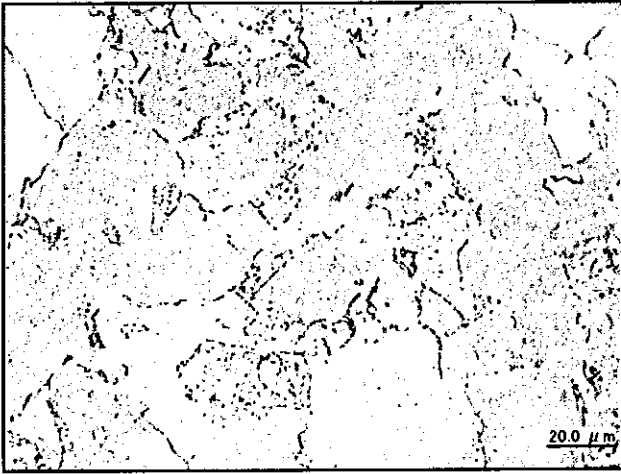


Photo II-11-1 Microstructure observation
Main Steam Pipe-Right (Circumferential weld, near the stop valve : Base metal)

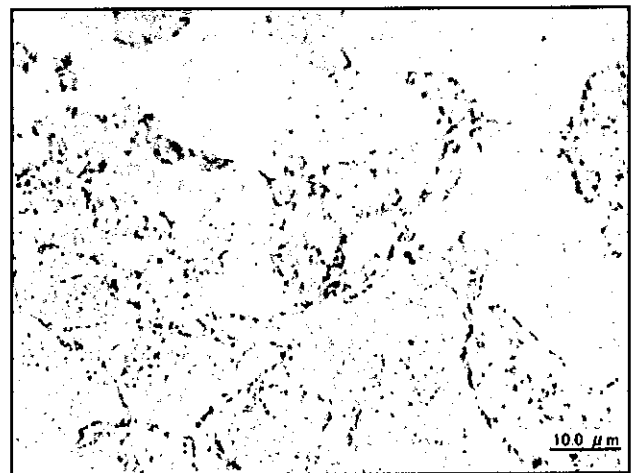
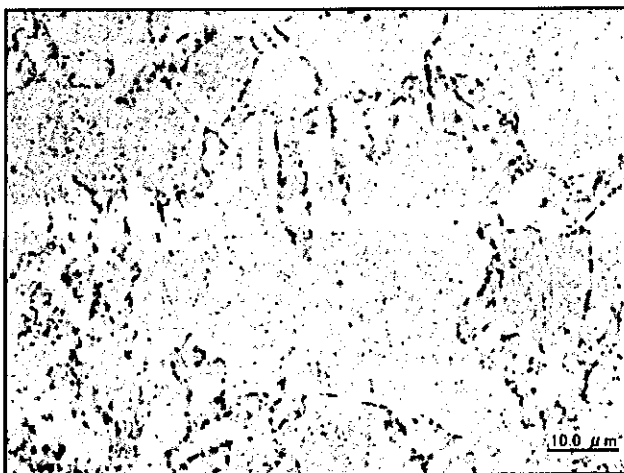
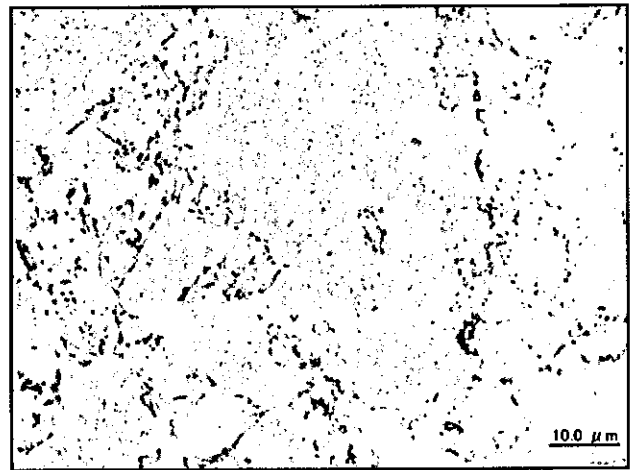
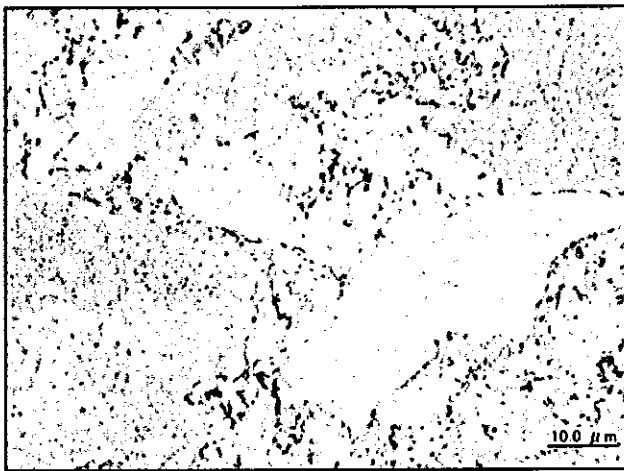
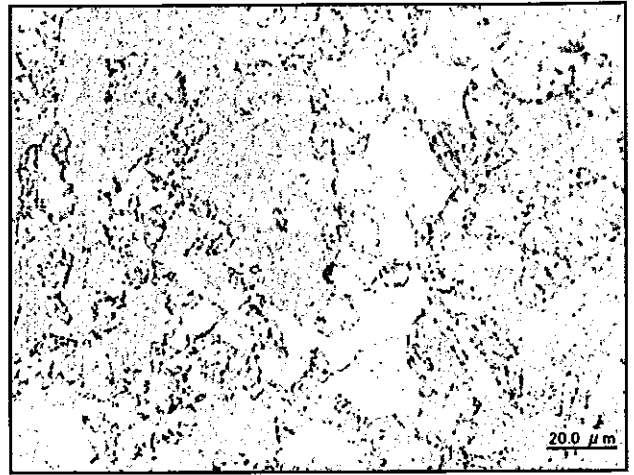
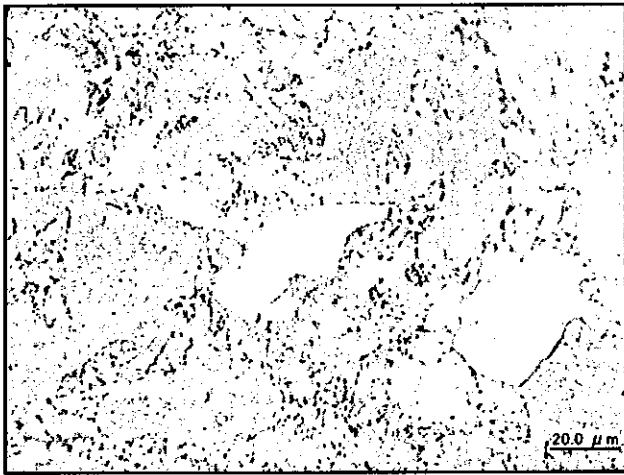


Photo II-11-2 Microstructure observation
Main Steam Pipe-Right (Circumferential weld, near the stop valve : Intercritical zone)

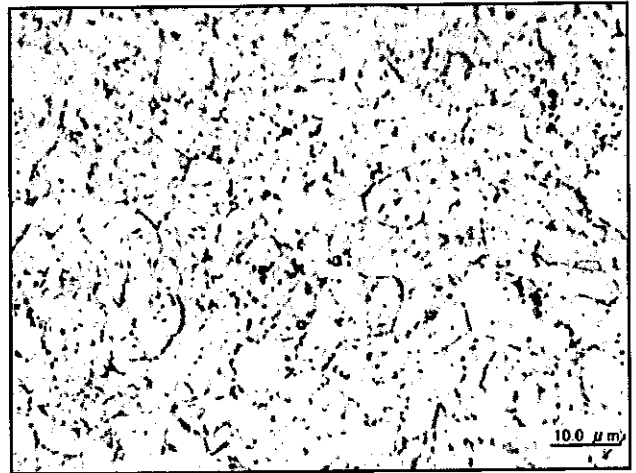
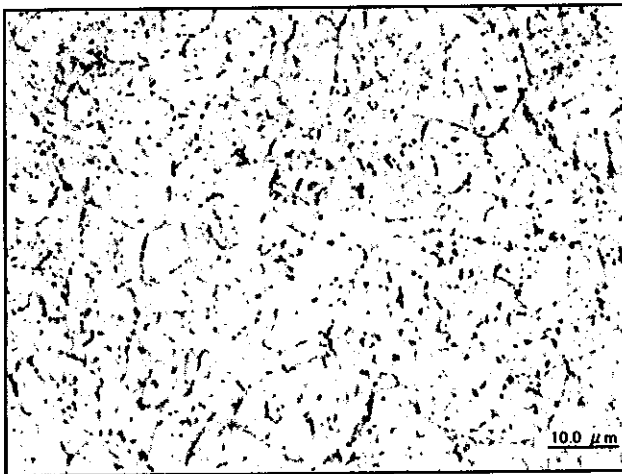
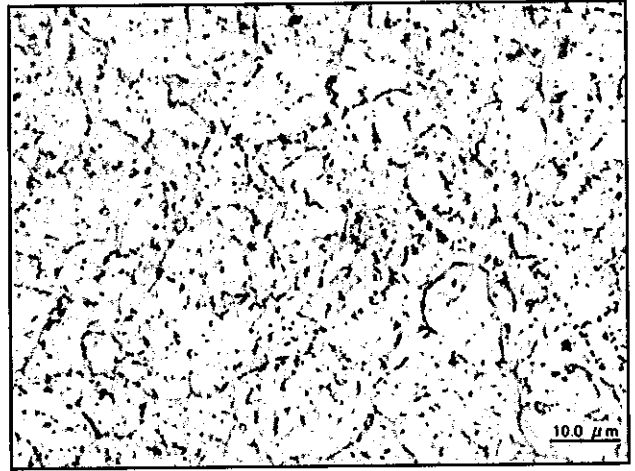
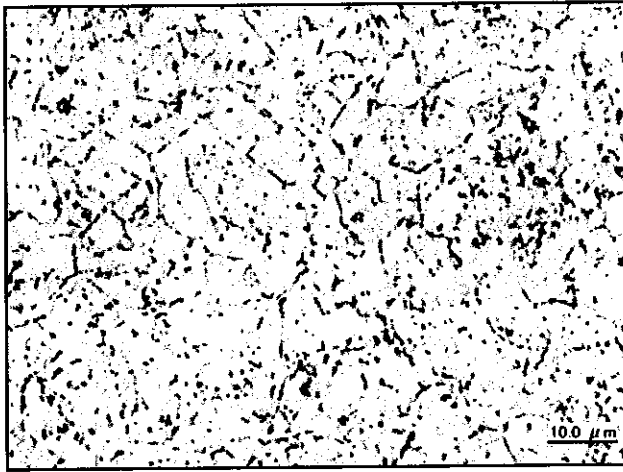
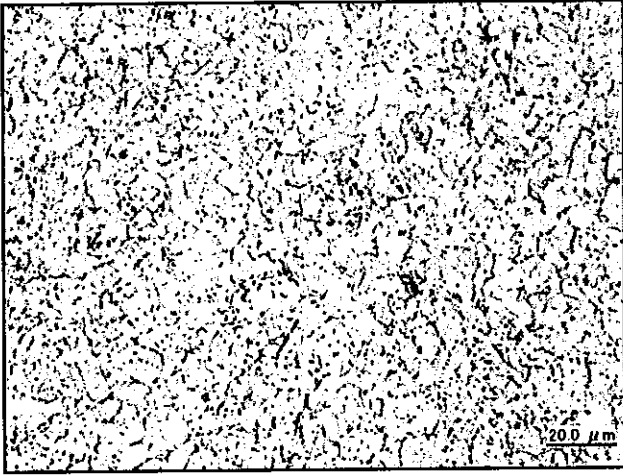


Photo II-11-3 Microstructure observation
Main Steam Pipe-Right (Circumferential weld, near the stop valve : Fine grain HAZ)

487

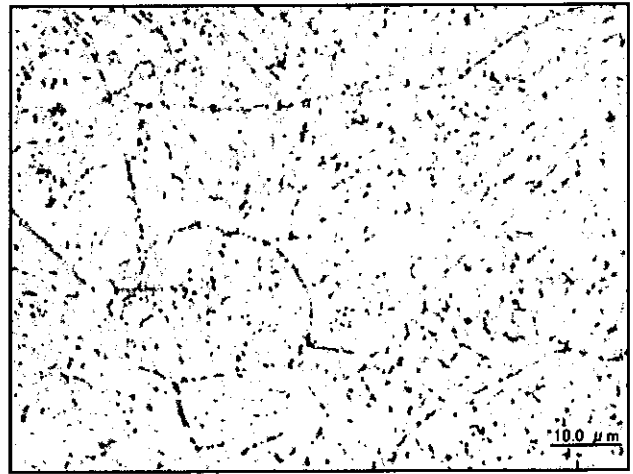
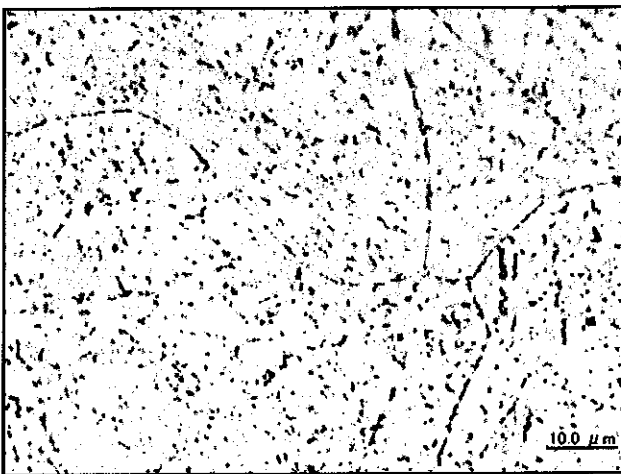
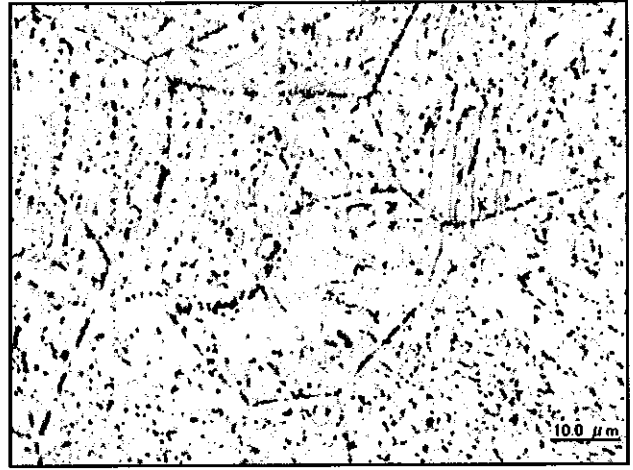
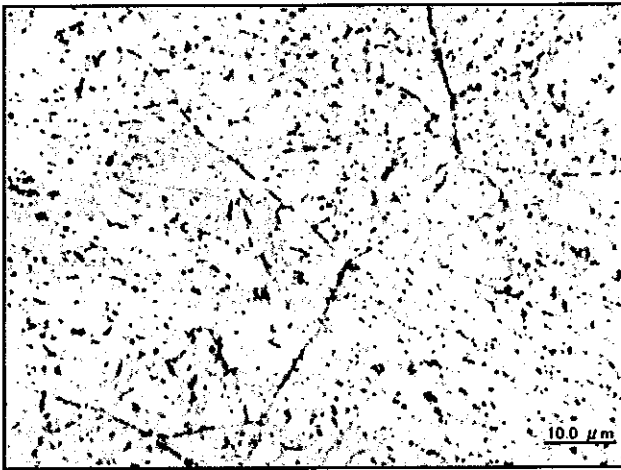
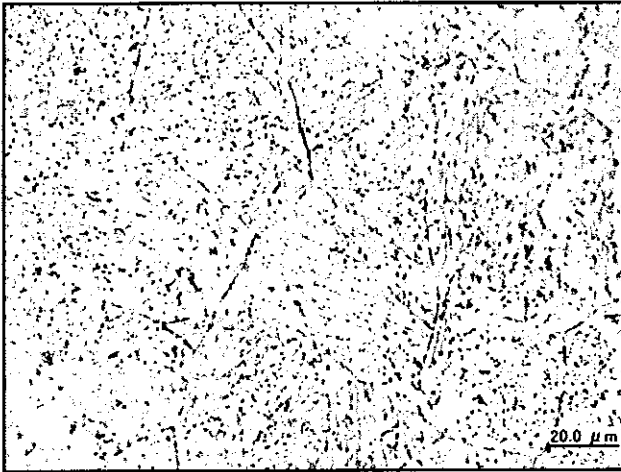


Photo II-11-4 Microstructure observation
Main Steam Pipe-Right (Circumferential weld, near the stop valve : Coarse grain HAZ)

006

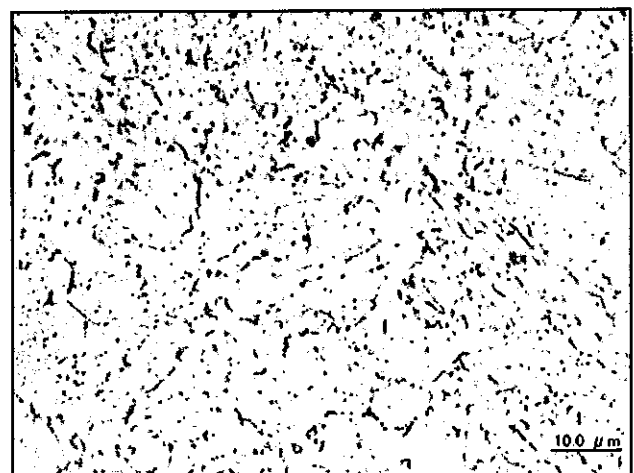
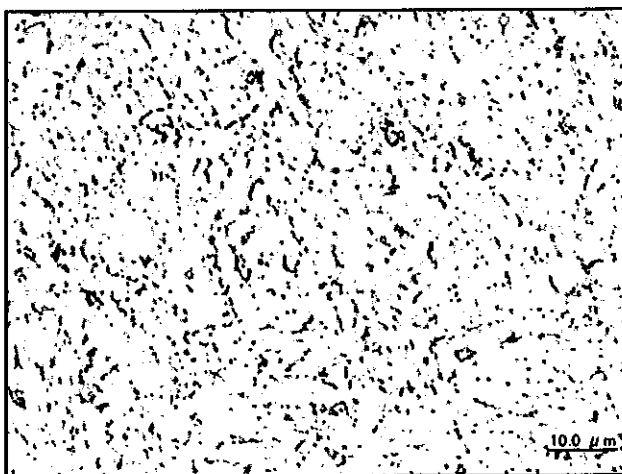
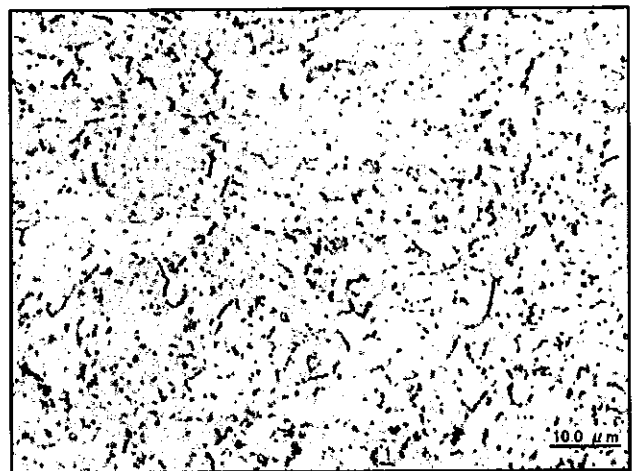
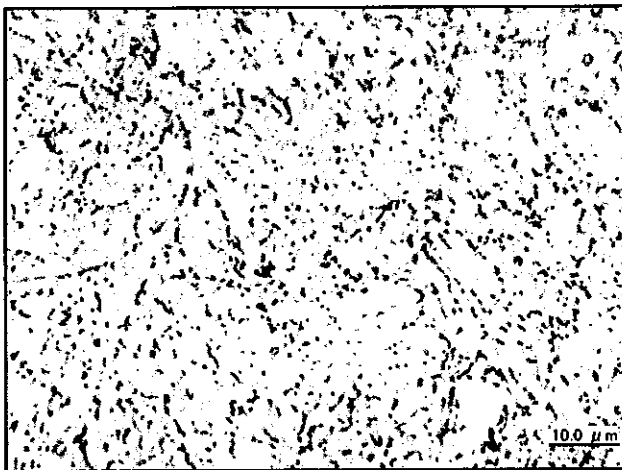
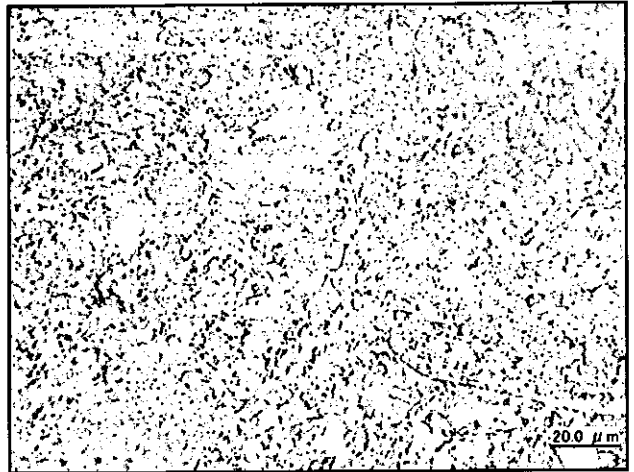
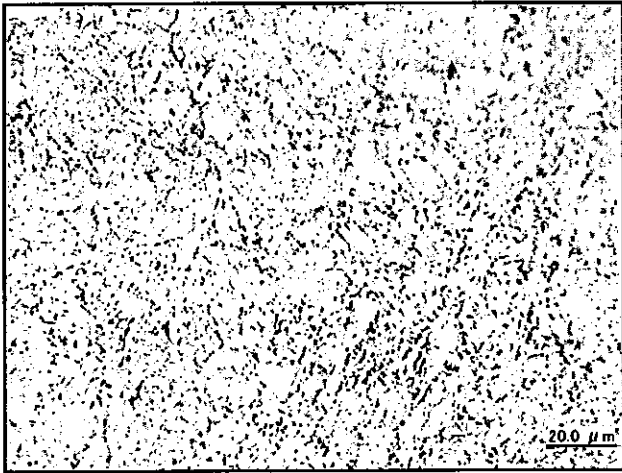


Photo II-11-5 Microstructure observation
Main Steam Pipe-Right (Circumferential weld, near the stop valve : Weld metal)

2005

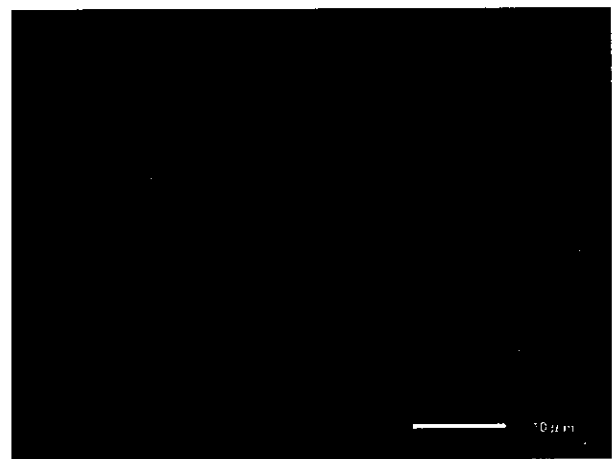
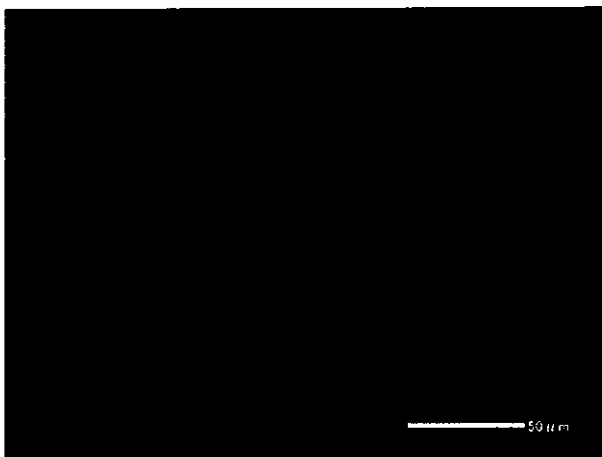
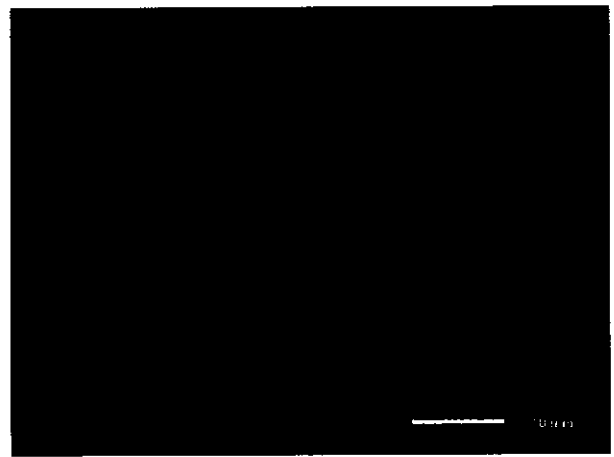
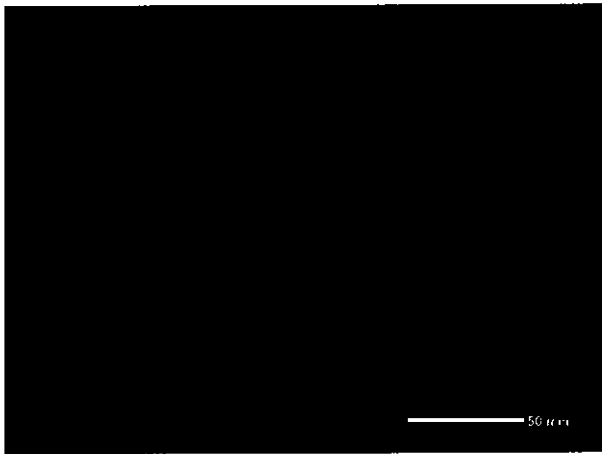
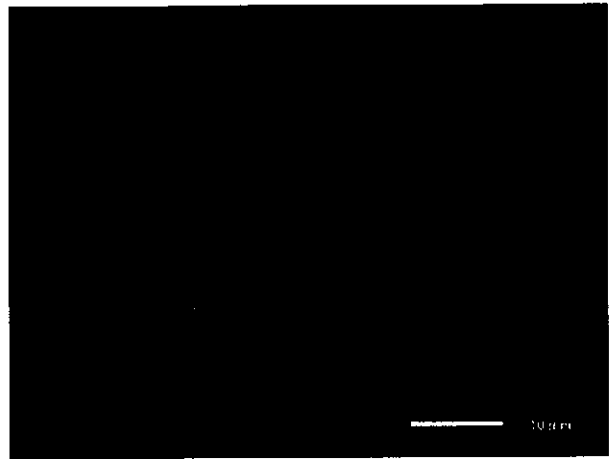
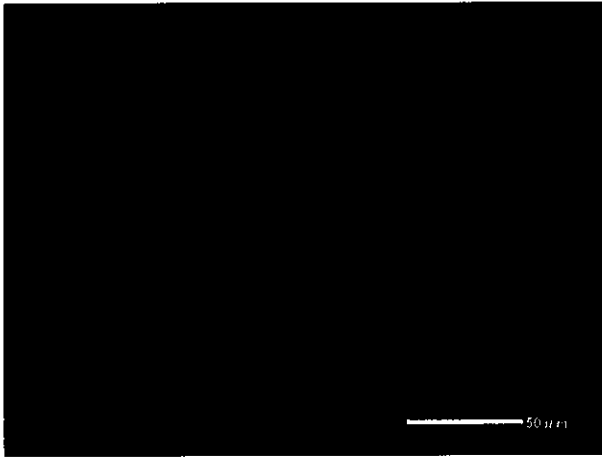


Photo II-11-6 SEM (Scanning electron microscope) observation
Main Steam Pipe-Right (Circumferential weld, near the stop valve : Fine grain HAZ)

380

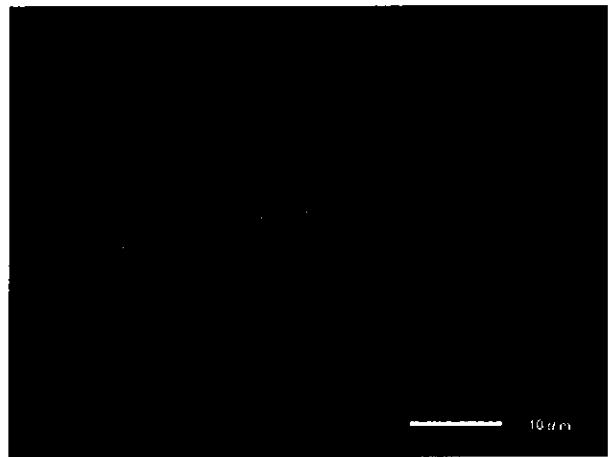
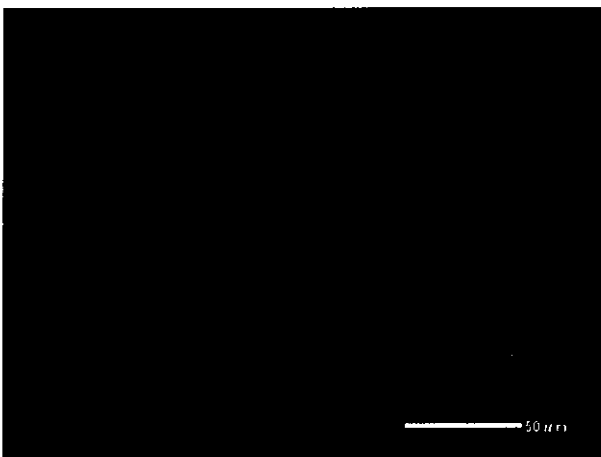
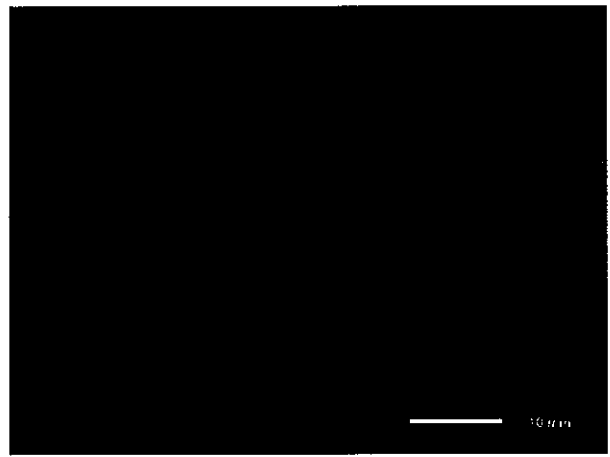
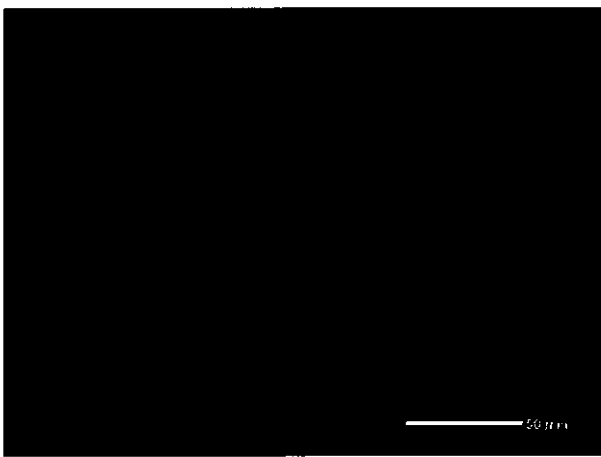
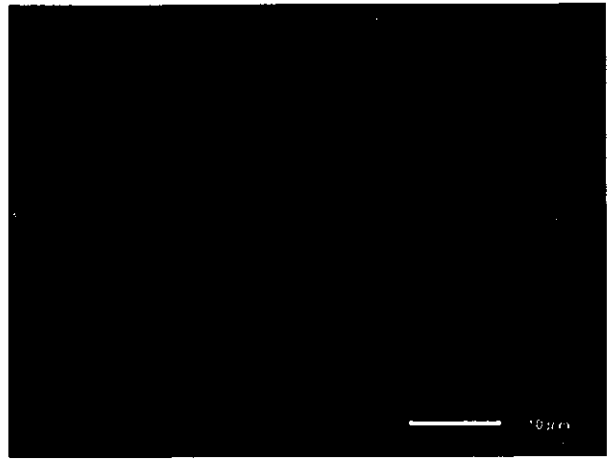
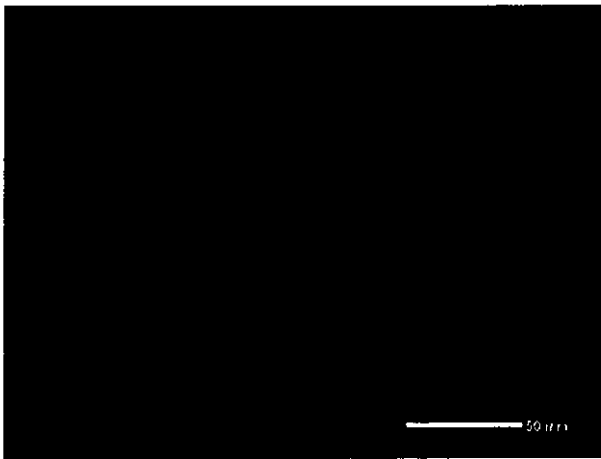


Photo II-11-7 SEM (Scanning electron microscope) observation
Main Steam Pipe-Right (Circumferential weld, near the stop valve : Coarse grain HAZ)

682

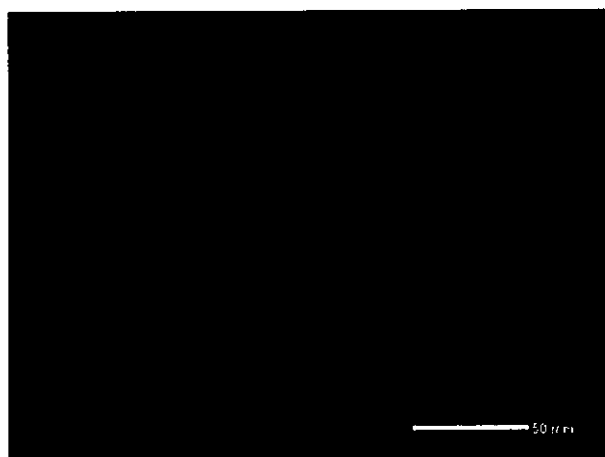
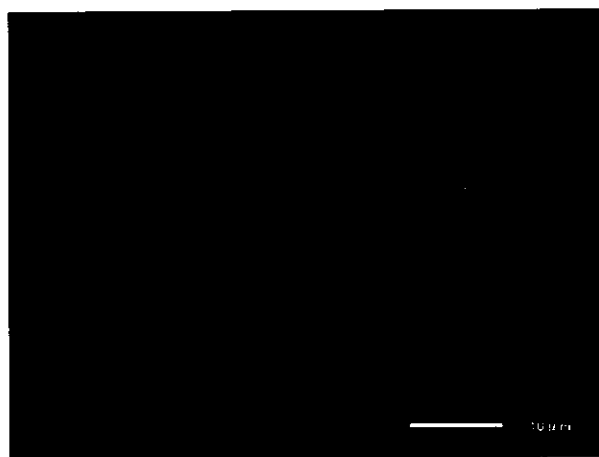
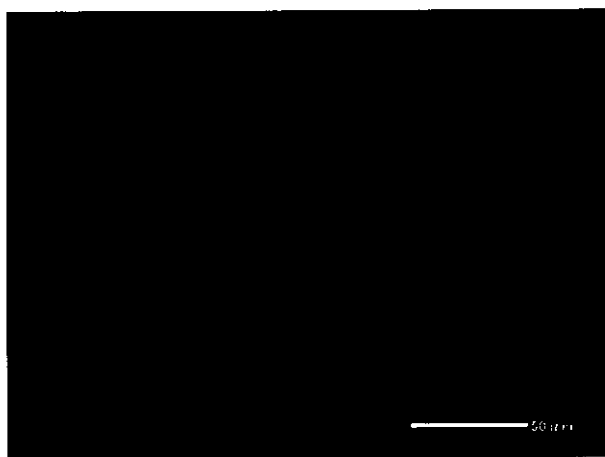
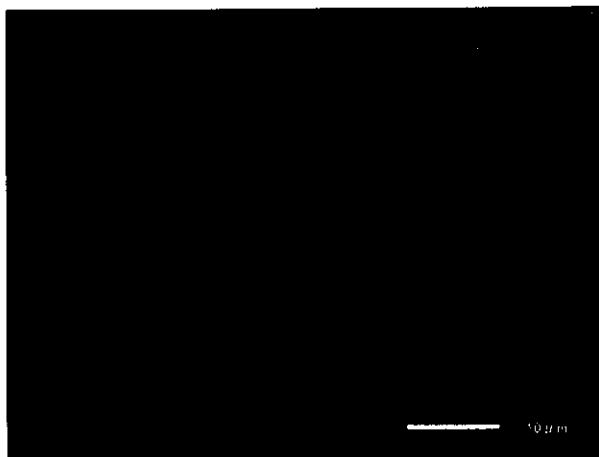
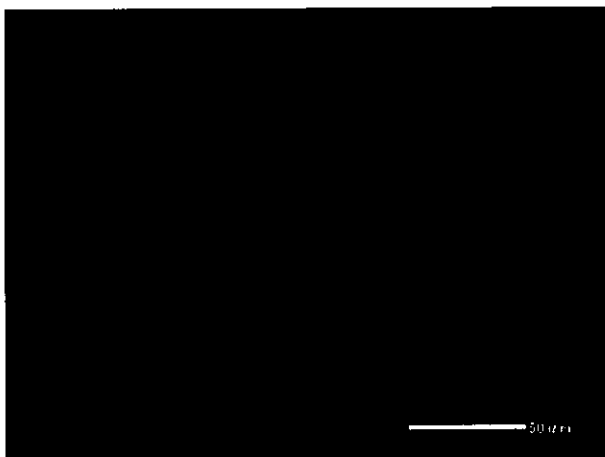
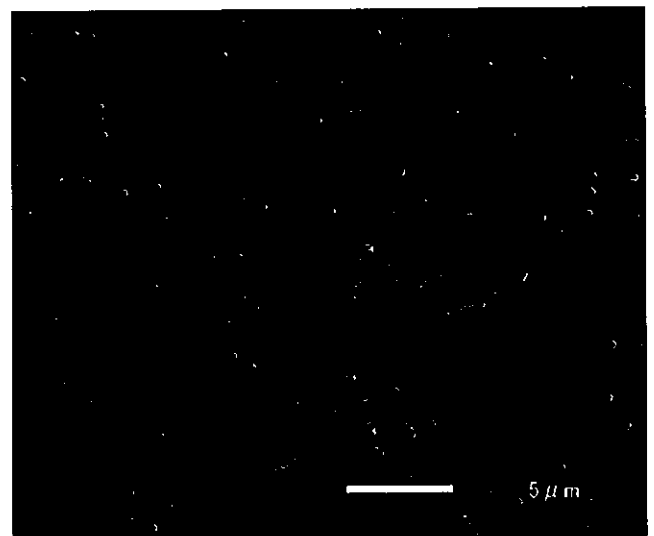
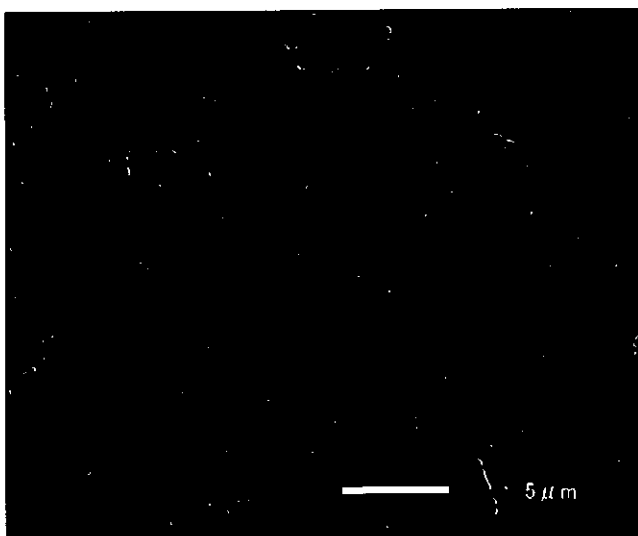
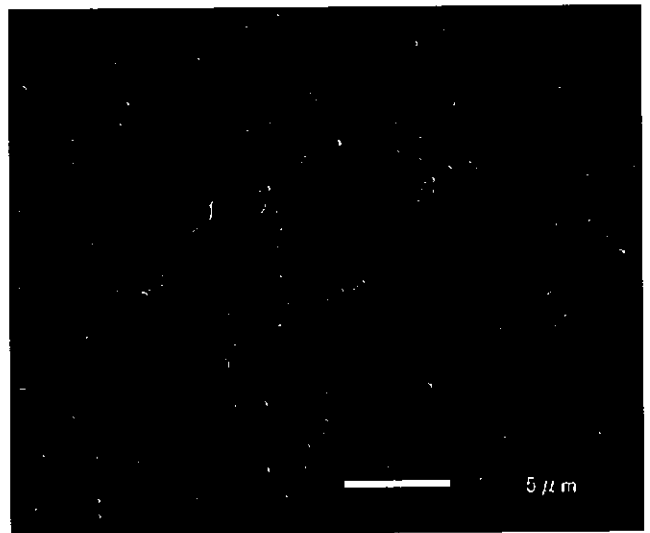
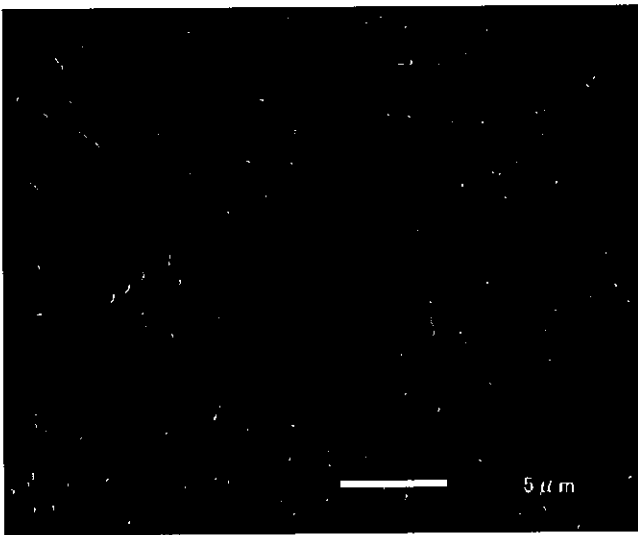
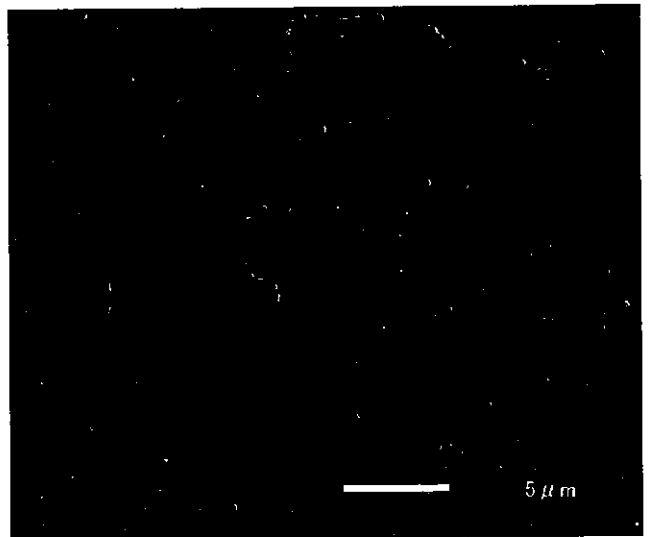
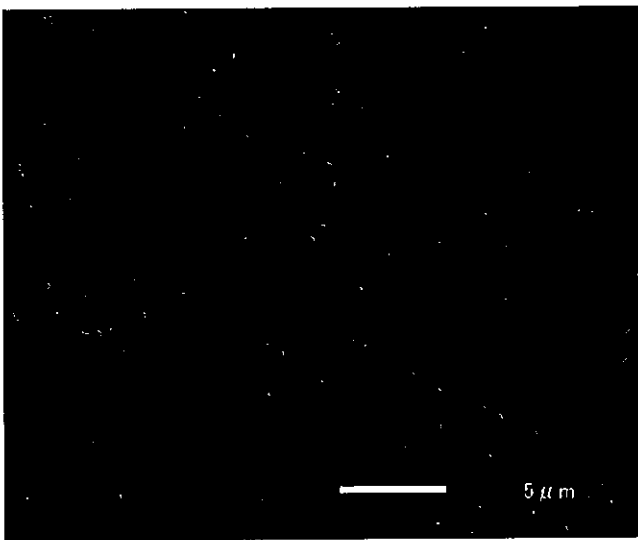


Photo II-11-8 SEM(Scanning electron microscope) observation
Main Steam Pipe-Right(Circumferential weld,near the stop valve : Weld metal)



157
Photo II-11-9 Precipitates along grain boundary by SEM observation
Main Steam Pipe-Right (Circumferential weld, near the stop valve : Base metal)

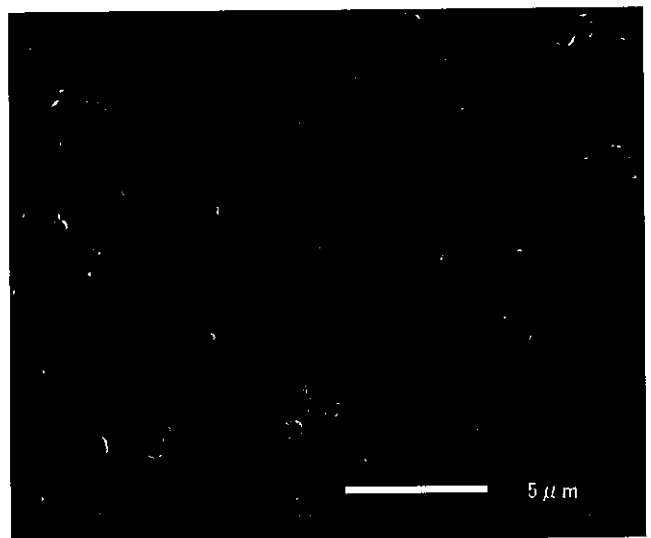
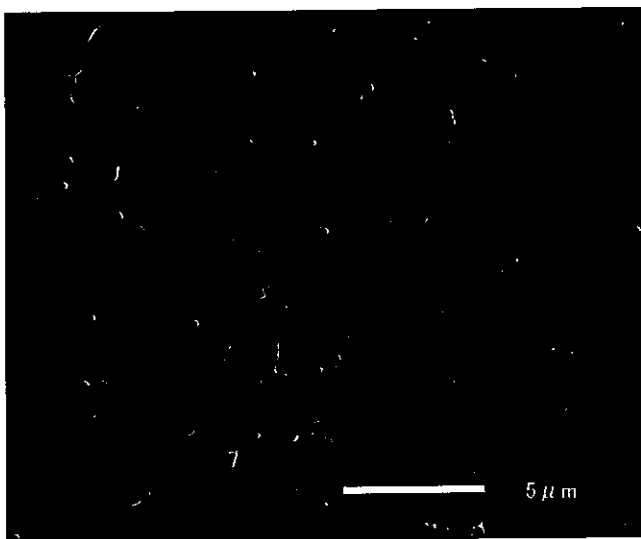
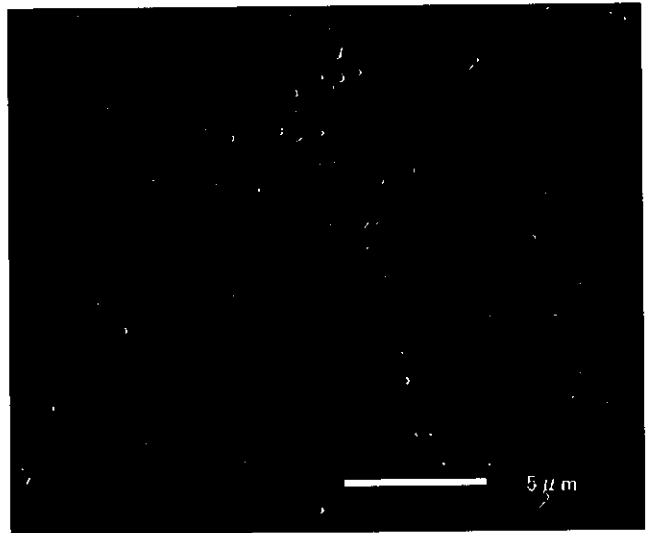
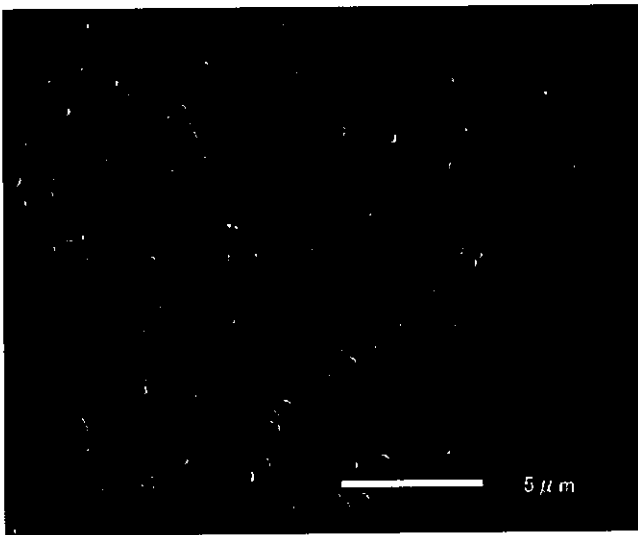
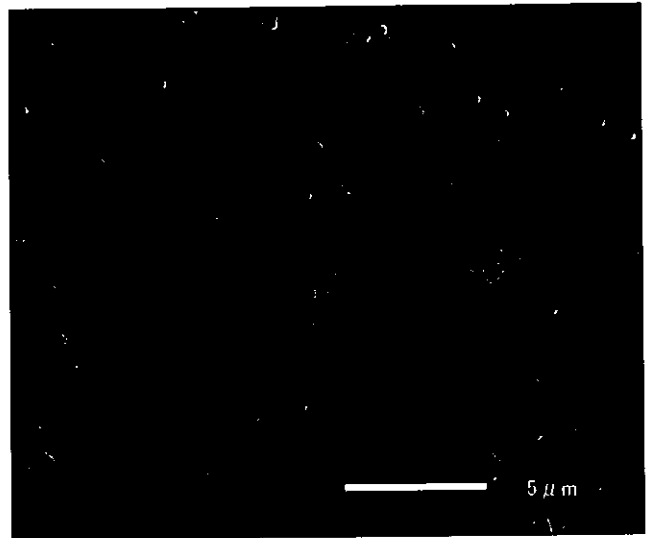
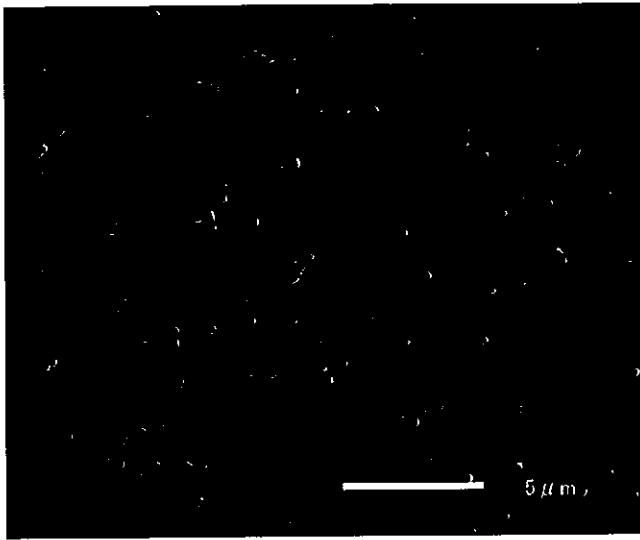
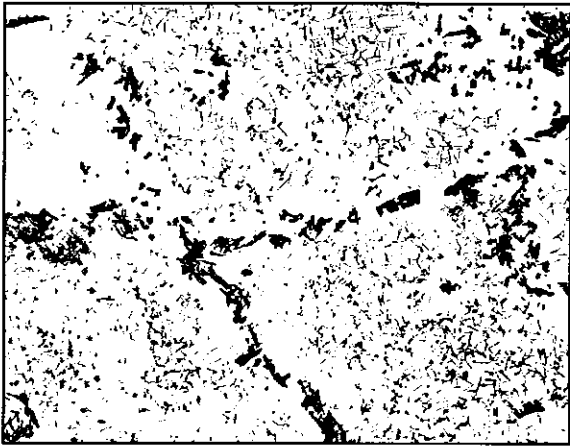
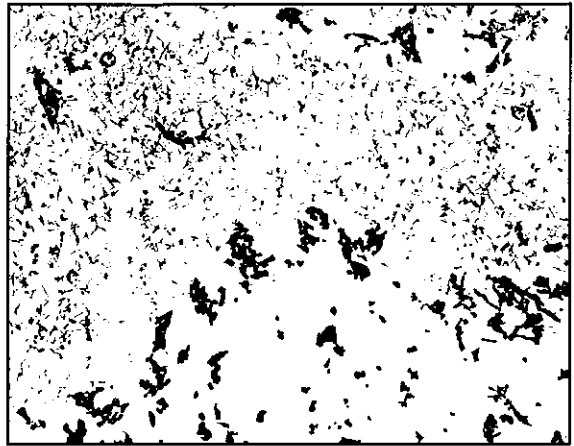


Photo II-11-10 Precipitates along grain boundary by SEM observation
Main Steam Pipe-Right (Circumferential weld, near the stop valve : Fine grain HAZ)

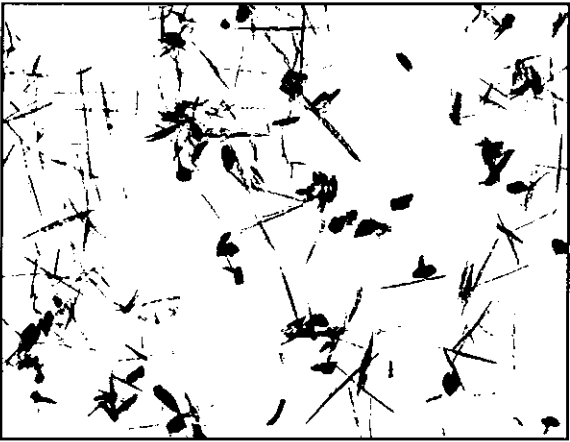
872



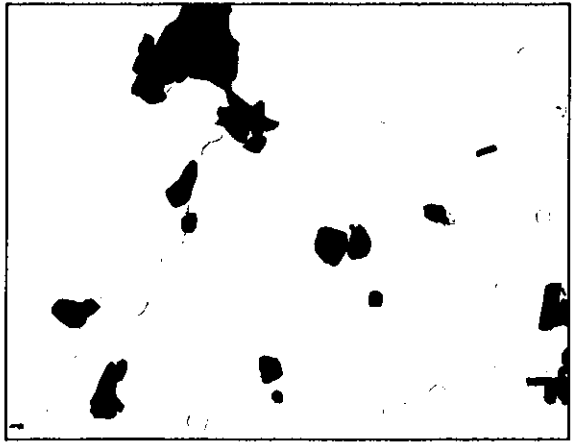
5 μm



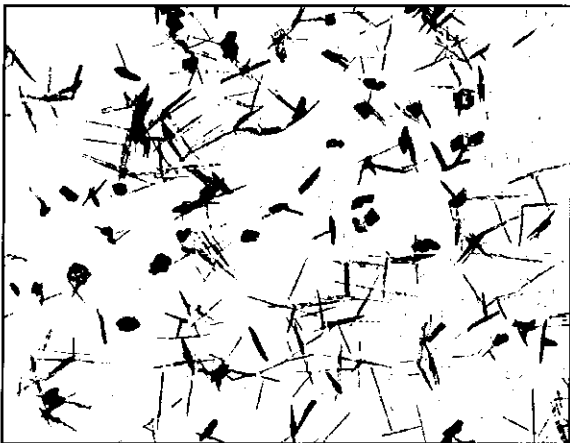
5 μm



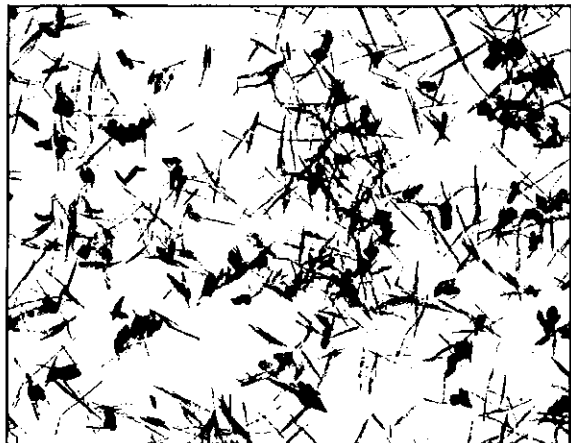
1 μm



1 μm



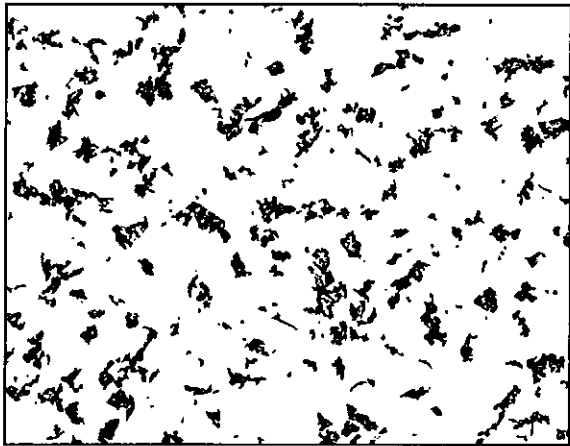
1 μm



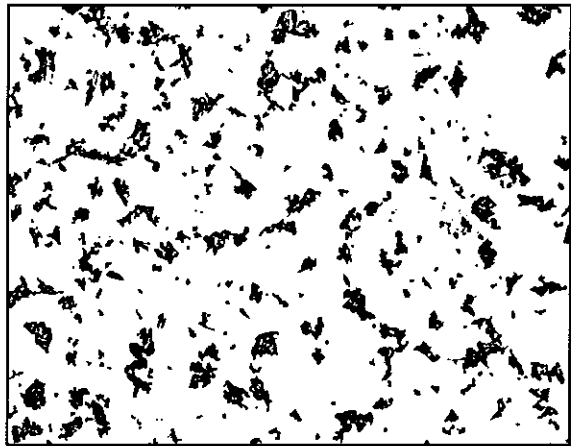
1 μm

Photo II-11-11 Precipitates by TEM (Transmission electron microscope) observation
Main Steam Pipe-Right (Circumferential weld, near the stop valve : Base metal)

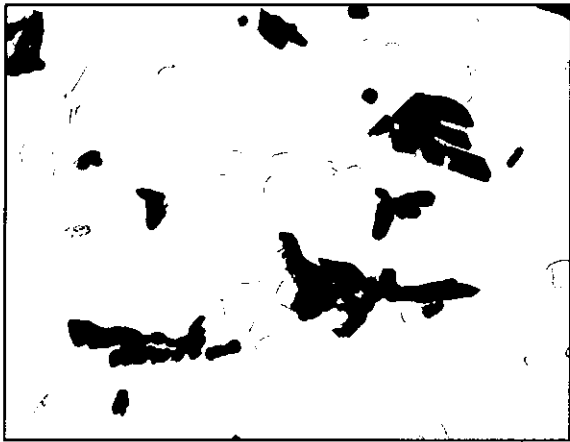
53



5 μm



5 μm



1 μm



1 μm

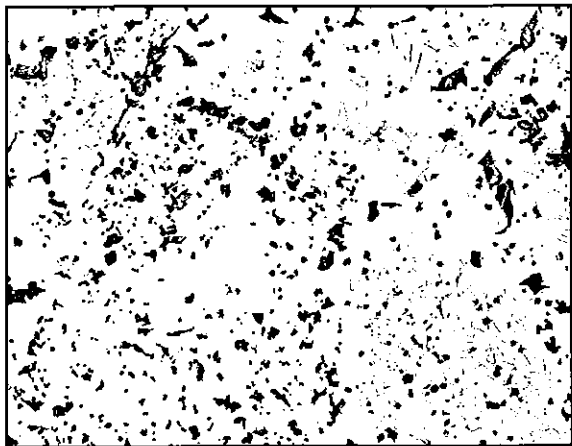


1 μm

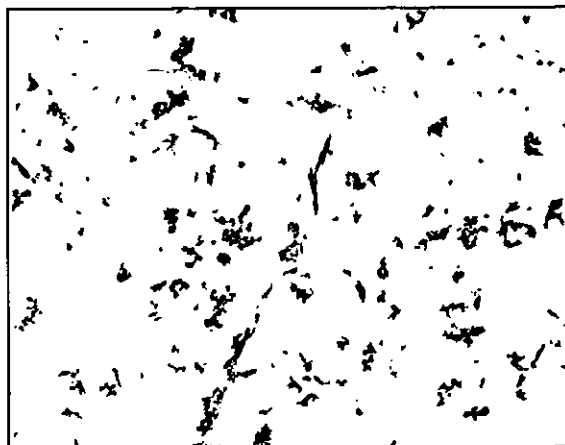


1 μm

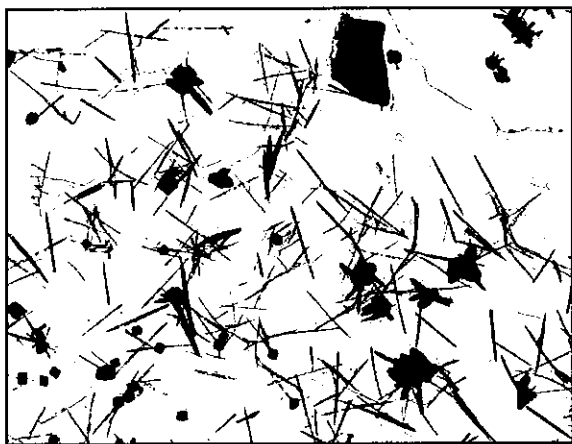
458
Photo II-11-12 Precipitates by TEM (Transmission electron microscope) observation
Main Steam Pipe-Right (Circumferential weld, near the stop valve : Fine grain HAZ)



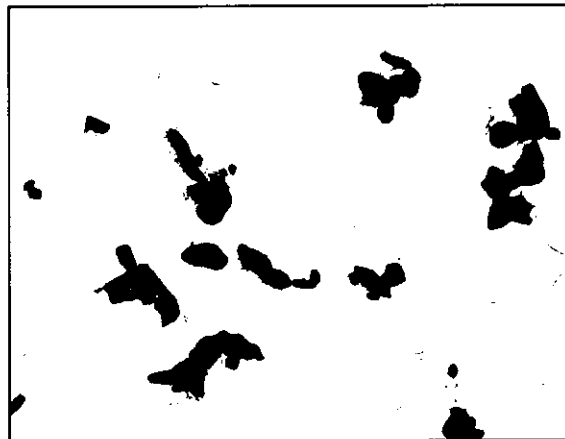
5 μ m



5 μ m



1 μ m



1 μ m

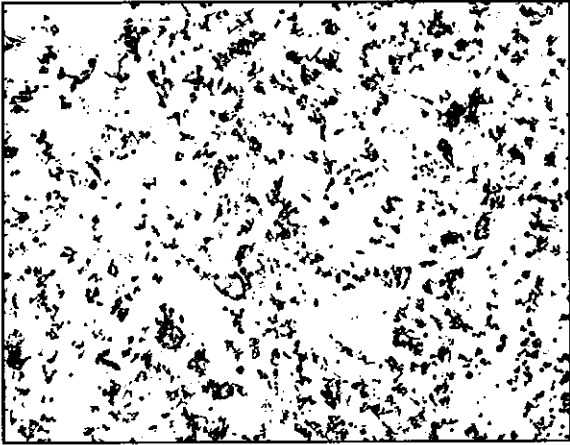


1 μ m

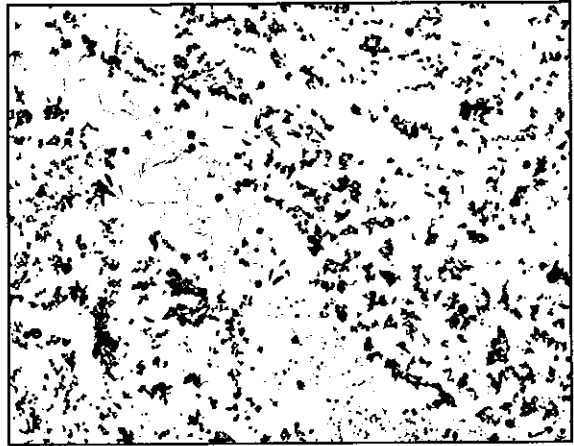


1 μ m

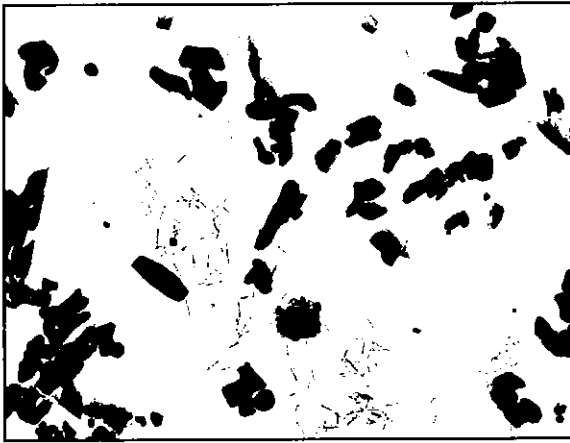
Photo II-11-13 Precipitates by TEM (Transmission electron microscope) observation
Main Steam Pipe-Right (Circumferential weld, near the stop valve : Coarse grain HAZ)



5 μm



5 μm



1 μm



1 μm



1 μm



1 μm

Photo II-11-14 Precipitates by TEM (Transmission electron microscope) observation
Main Steam Pipe-Right (Circumferential weld, near the stop valve : Weld metal)

958

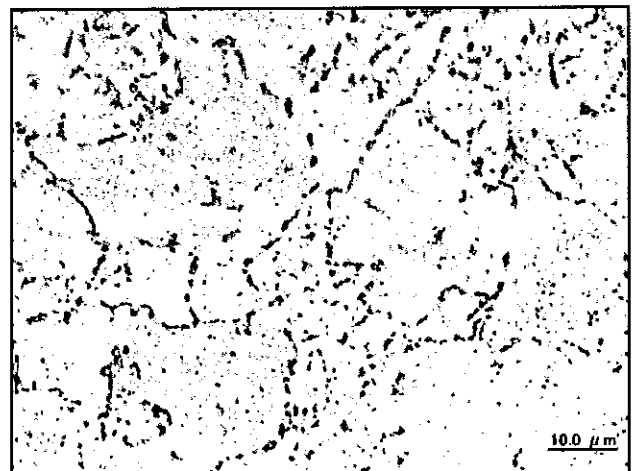
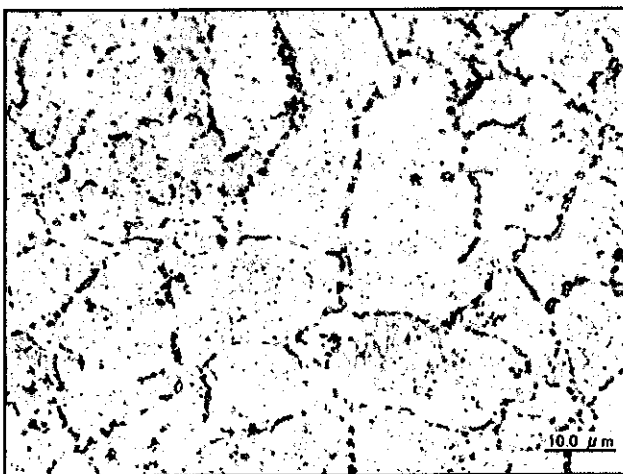
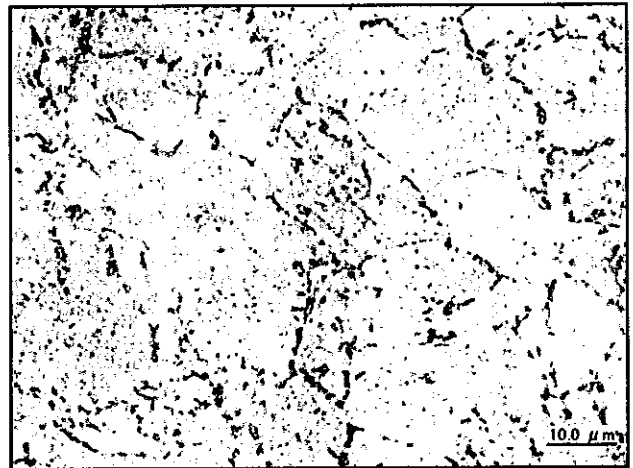
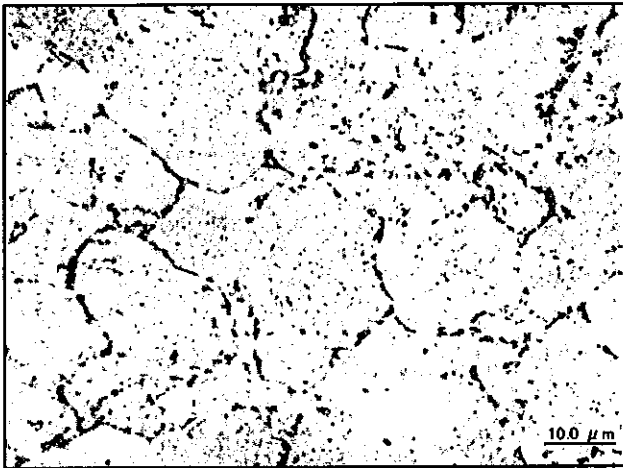
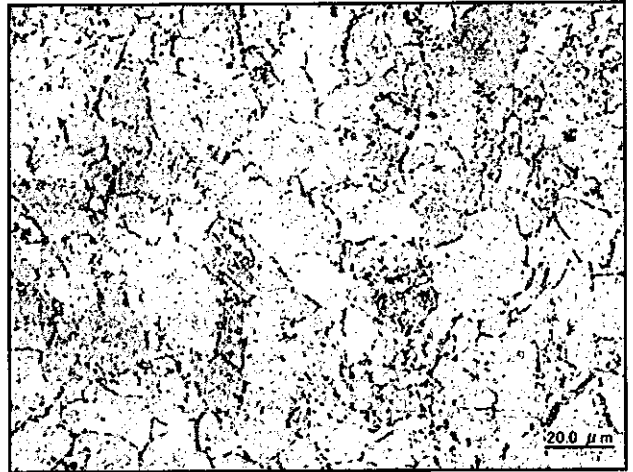
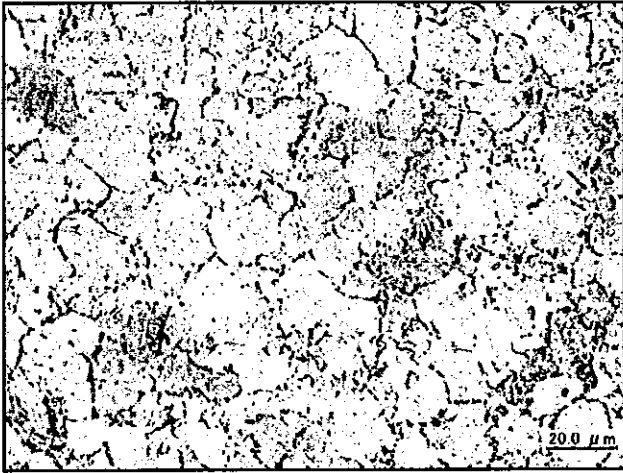


Photo II-12-1 Microstructure observation
Hot Reheat Pipe-Right (Circumferential weld : Base metal)

455

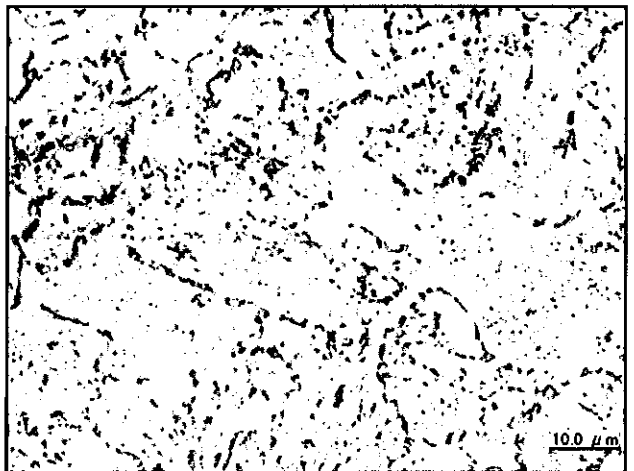
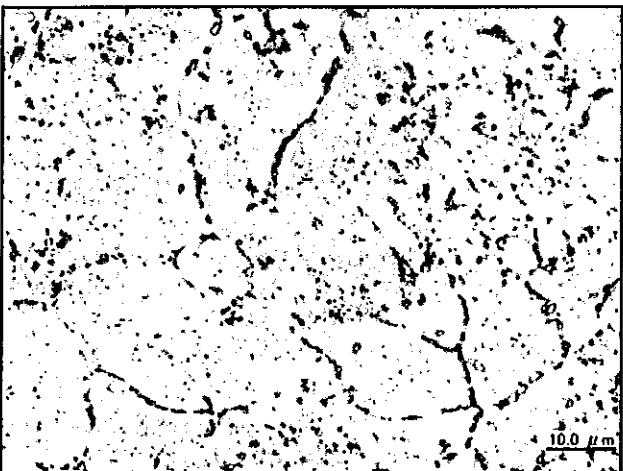
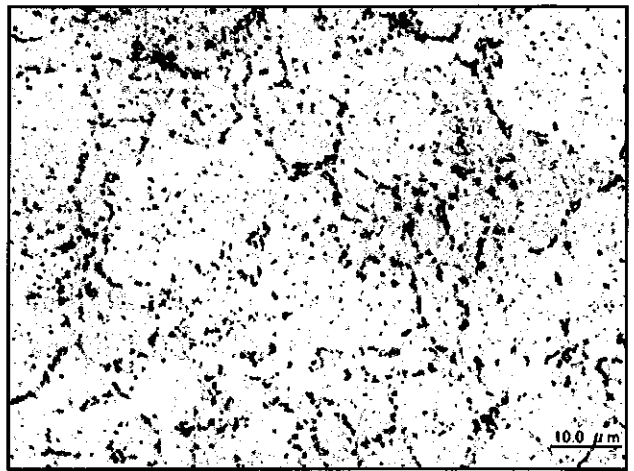
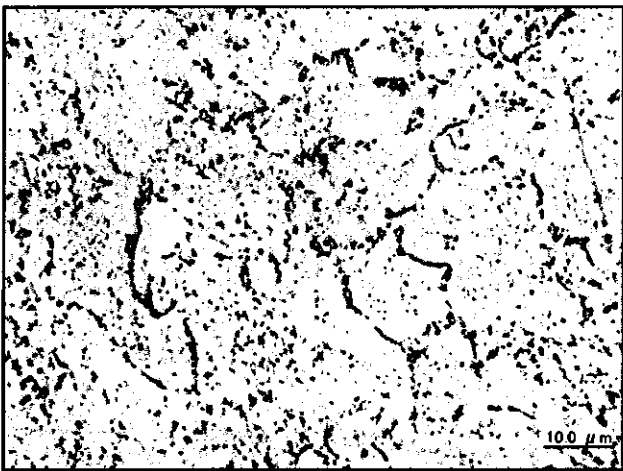
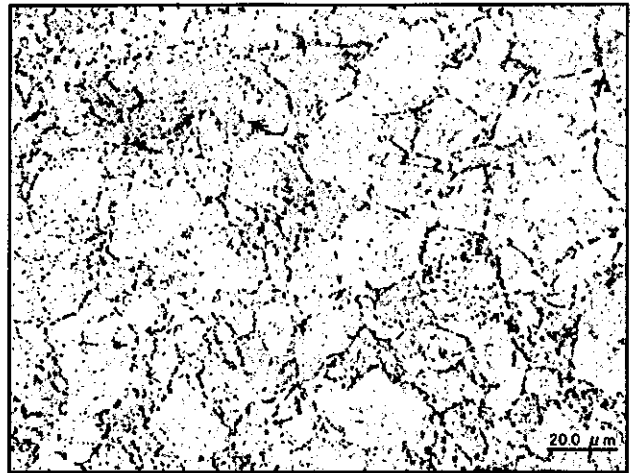
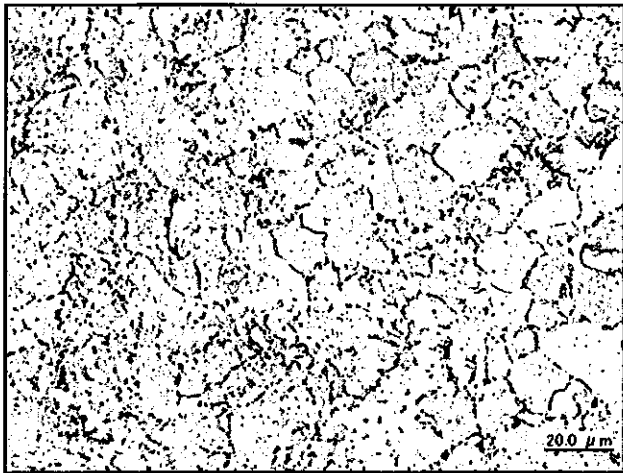


Photo II-12-2 Microstructure observation
Hot Reheat Pipe-Right (Circumferential weld : Intercritical zone)

277

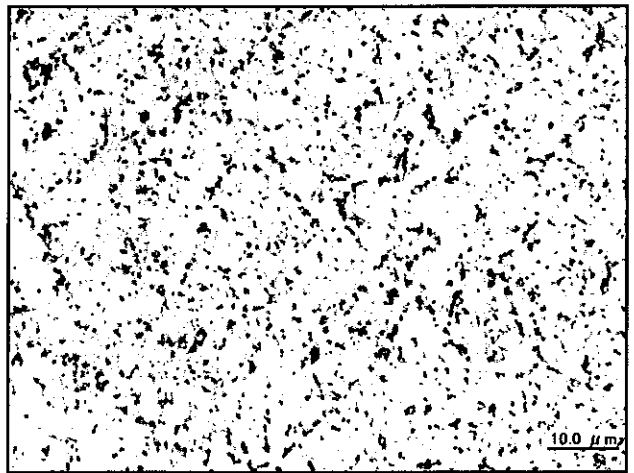
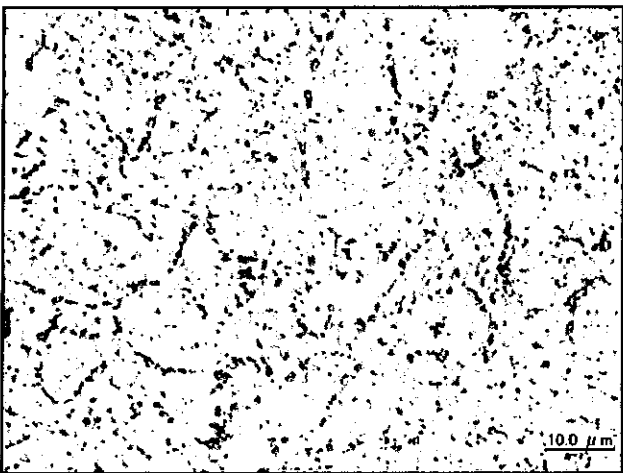
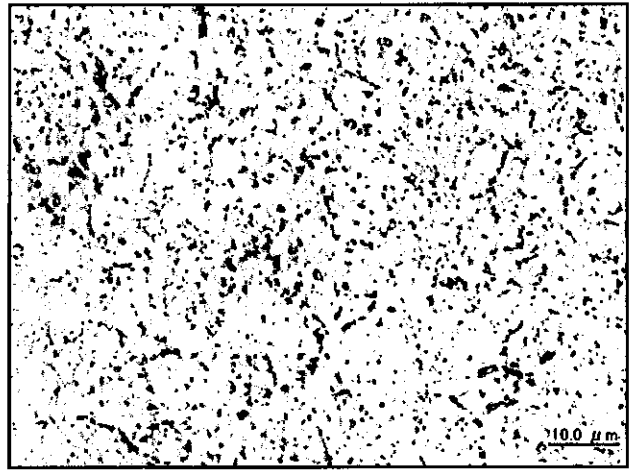
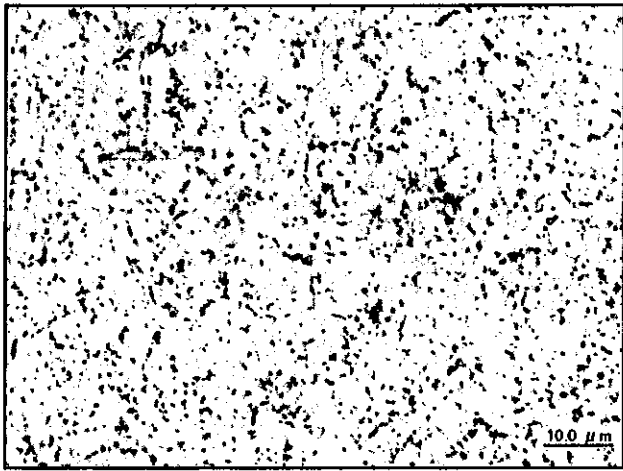
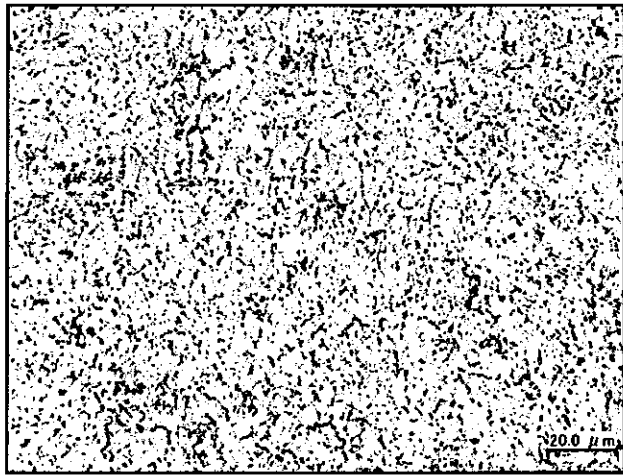


Photo II-12-3 Microstructure observation
Hot Reheat Pipe-Right (Circumferential weld : Fine grain HAZ)

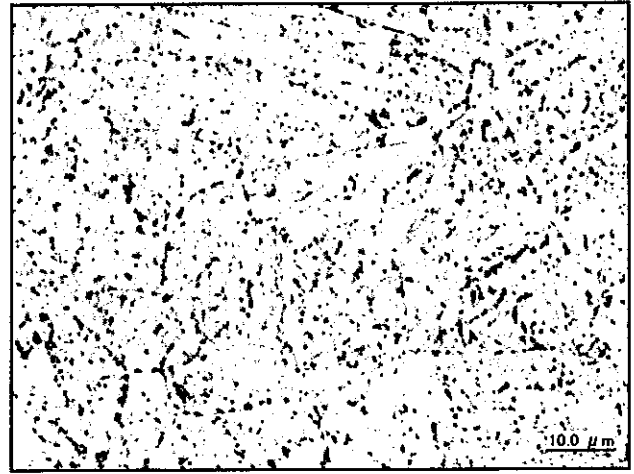
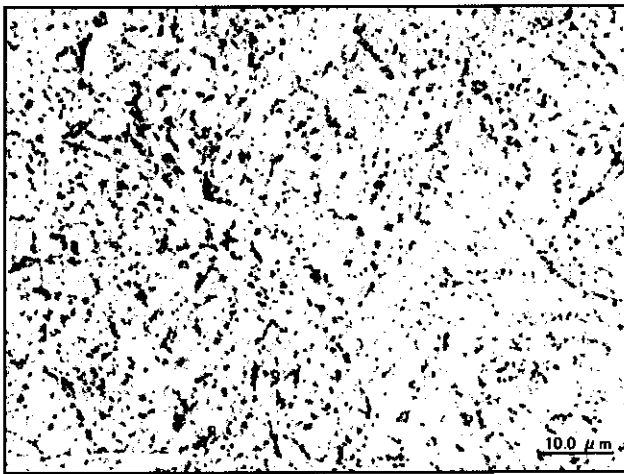
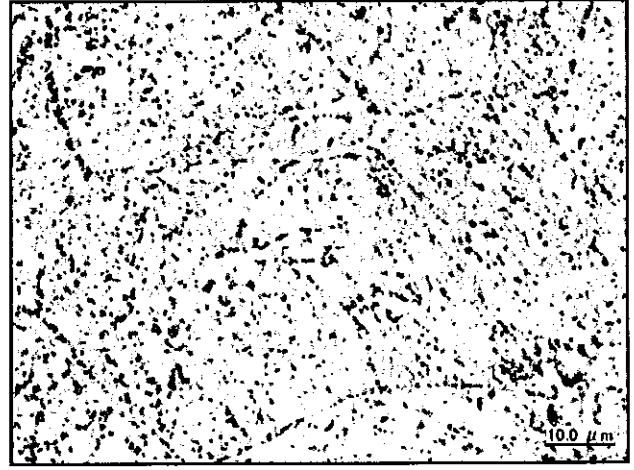
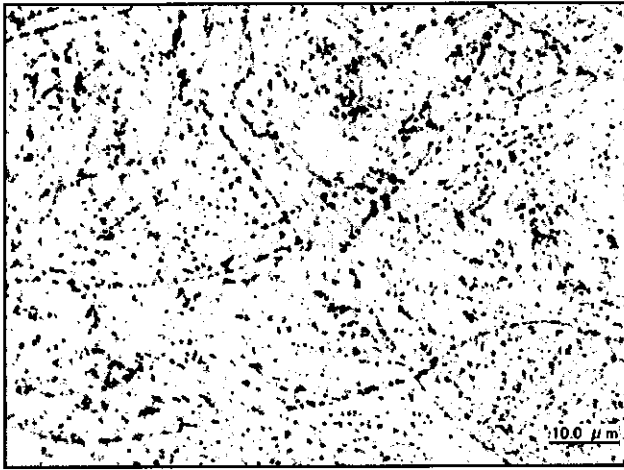


Photo II-12-4 Microstructure observation
Hot Reheat Pipe-Right (Circumferential weld : Coarse grain HAZ)

09%

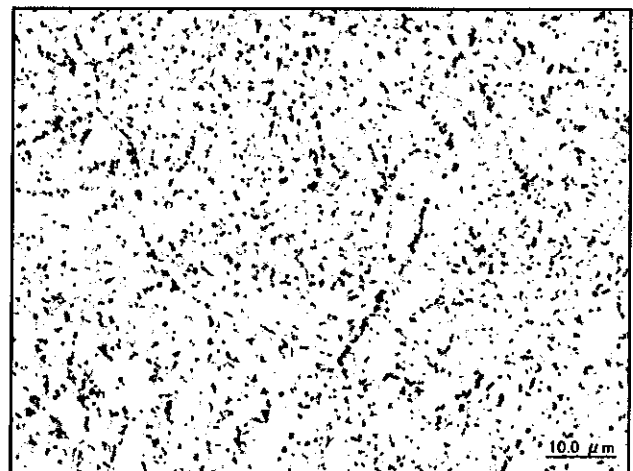
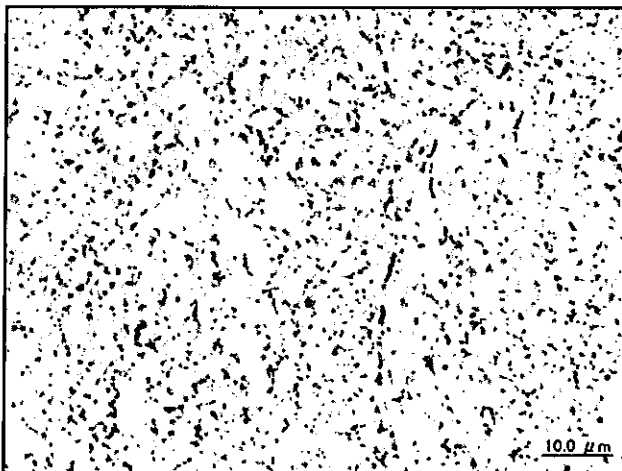
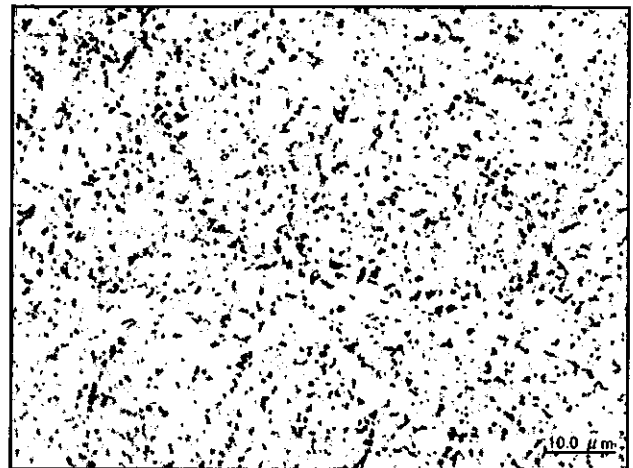
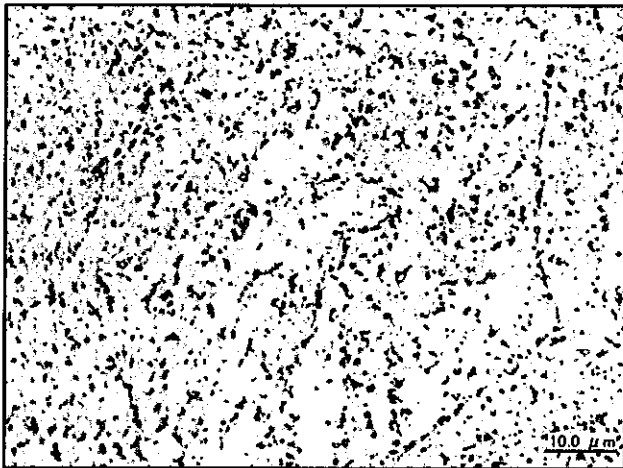
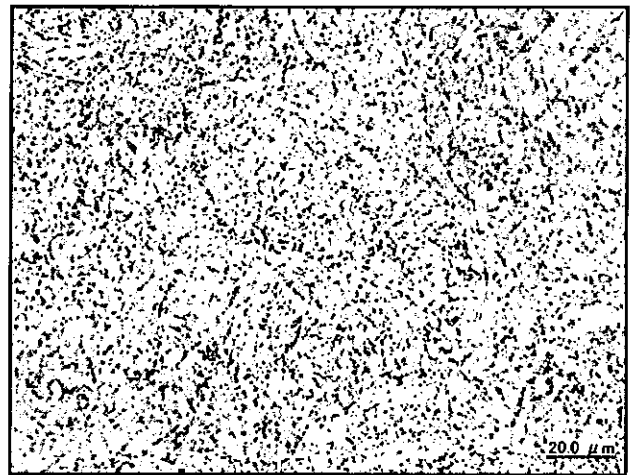
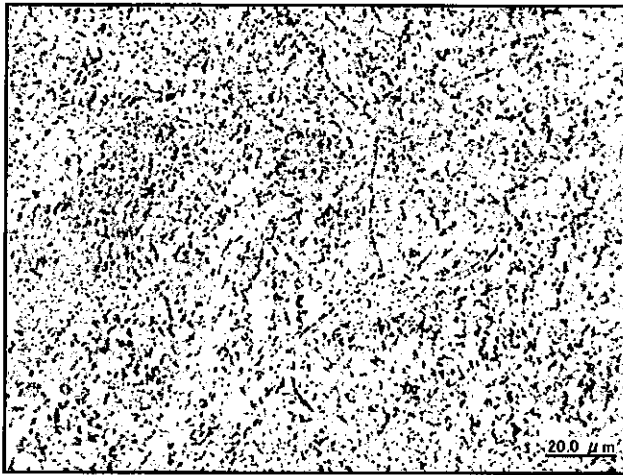


Photo II-12-5 Microstructure observation
Hot Reheat Pipe-Right (Circumferential weld : Weld metal)

46

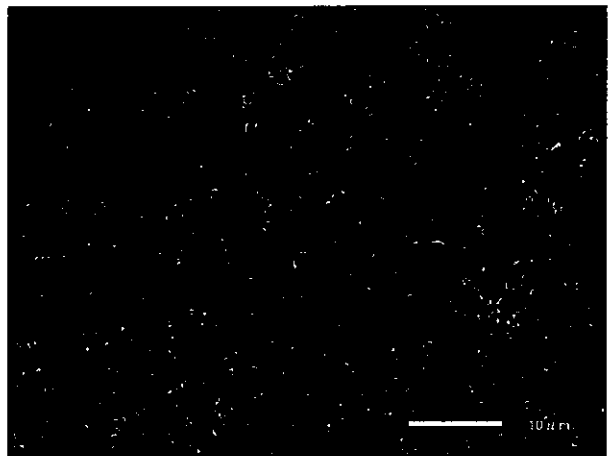
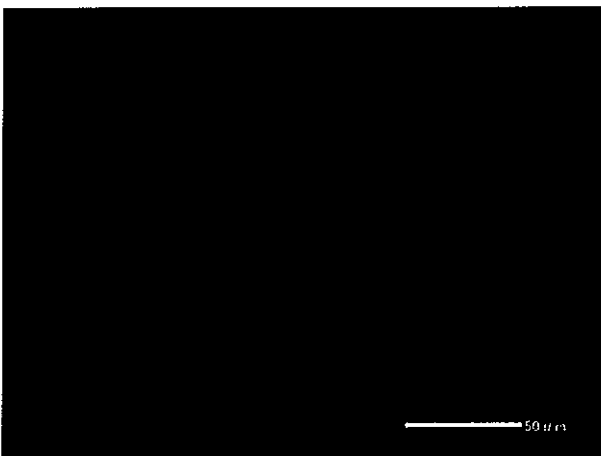
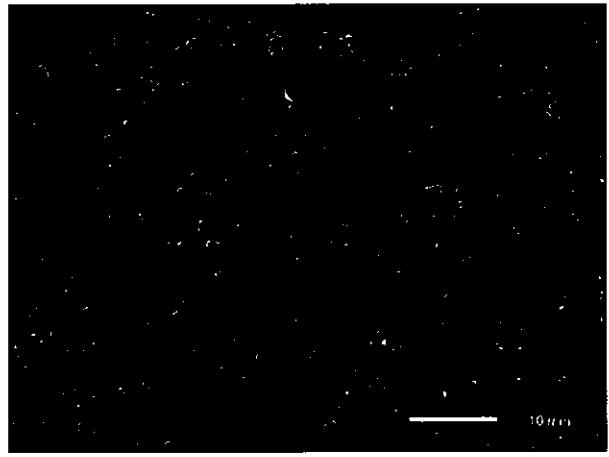
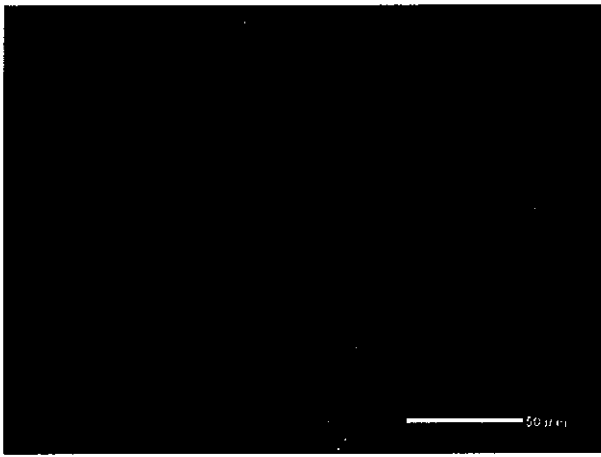
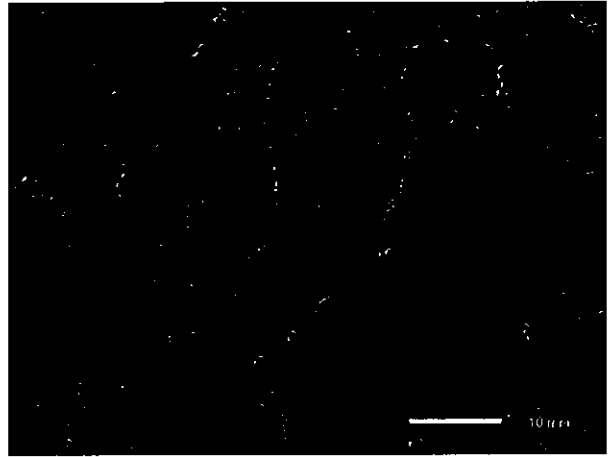
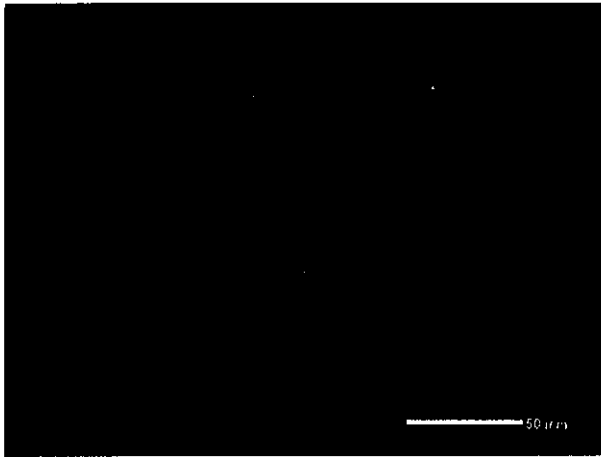


Photo II-12-6 SEM (Scanning electron microscope) observation
Hot Reheat Pipe-Right (Circumferential weld : Fine grain HAZ)

1052

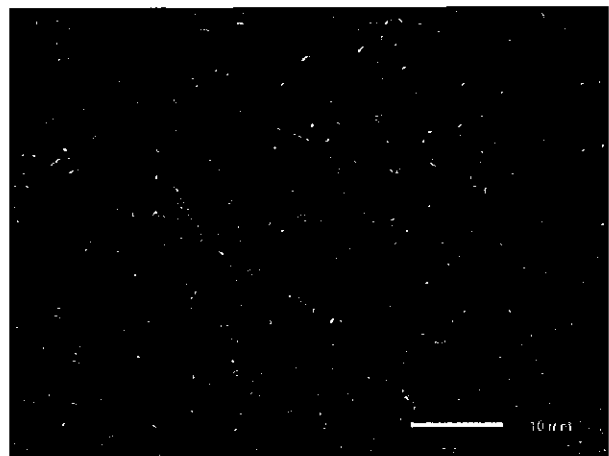
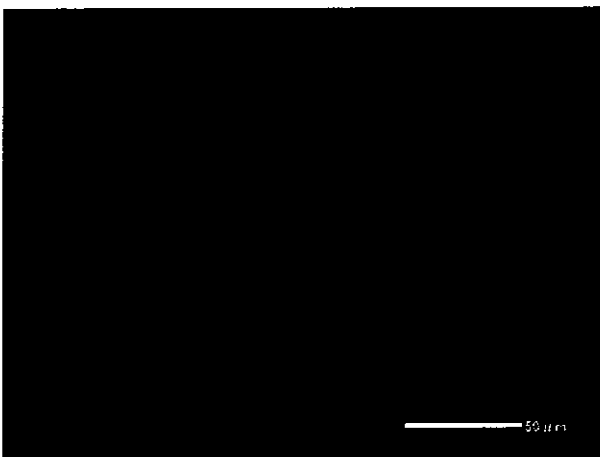
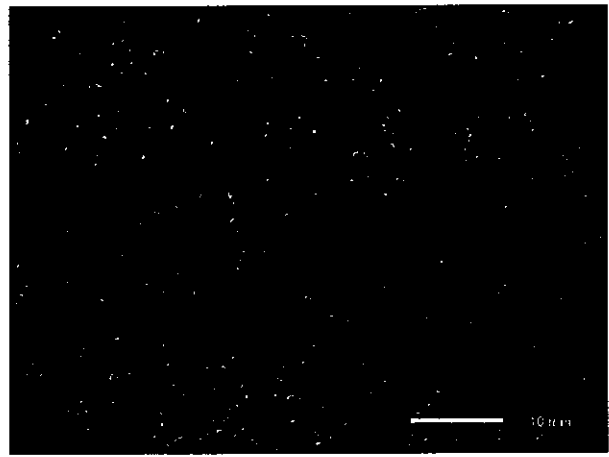
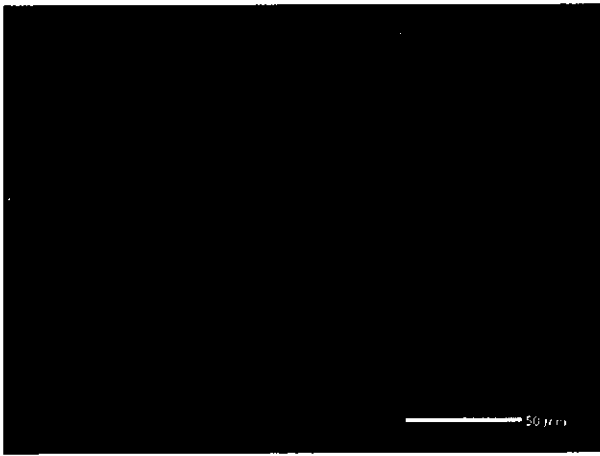
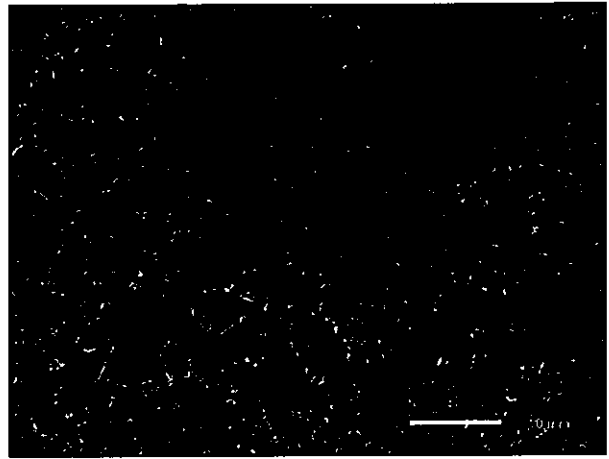
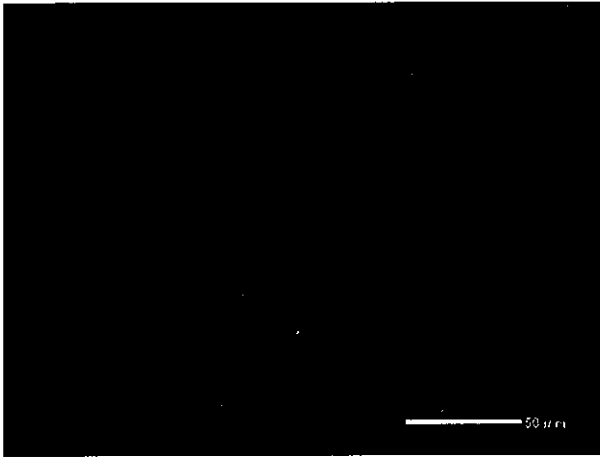


Photo II-12-7 SEM (Scanning electron microscope) observation
Hot Reheat Pipe-Right (Circumferential weld: Coarse grain HAZ)

553

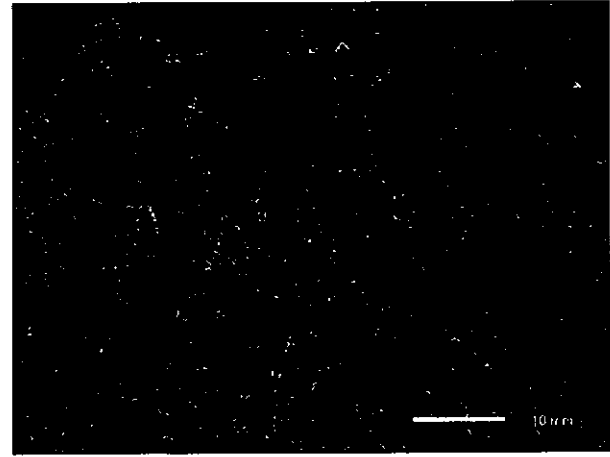
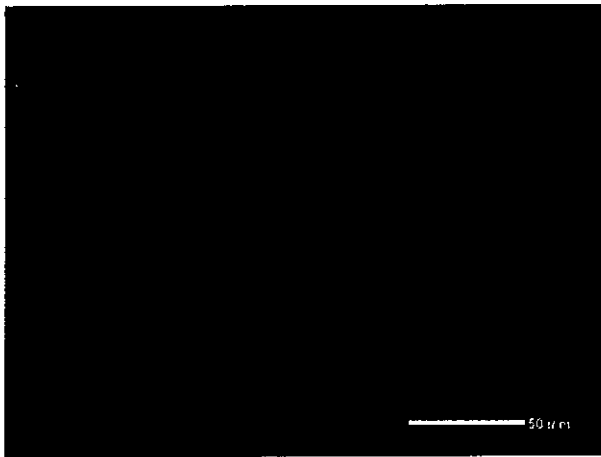
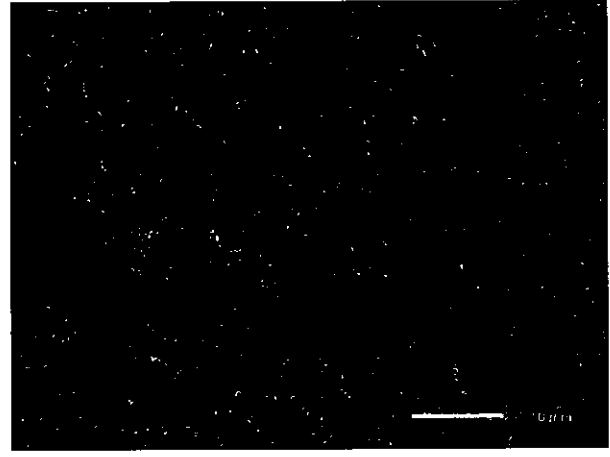
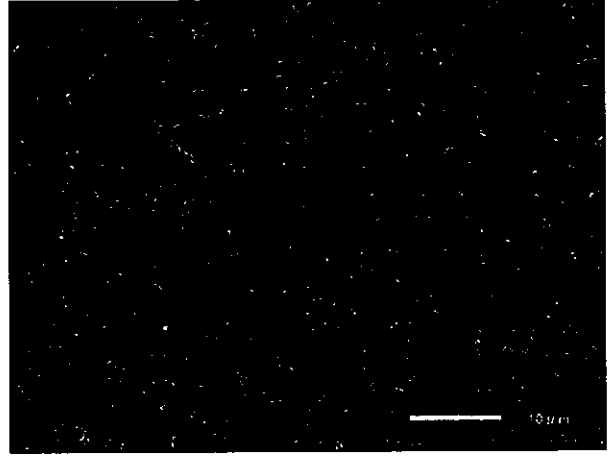
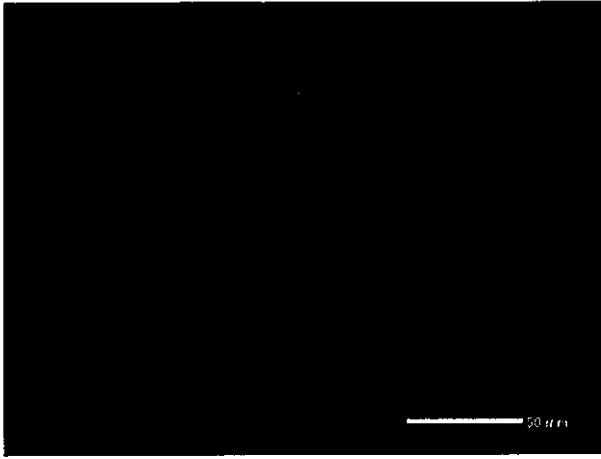


Photo II-12-8 SEM(Scanning electron microscope) observation
Hot Reheat Pipe-Right(Circumferential weld : Weld metal)

2.90

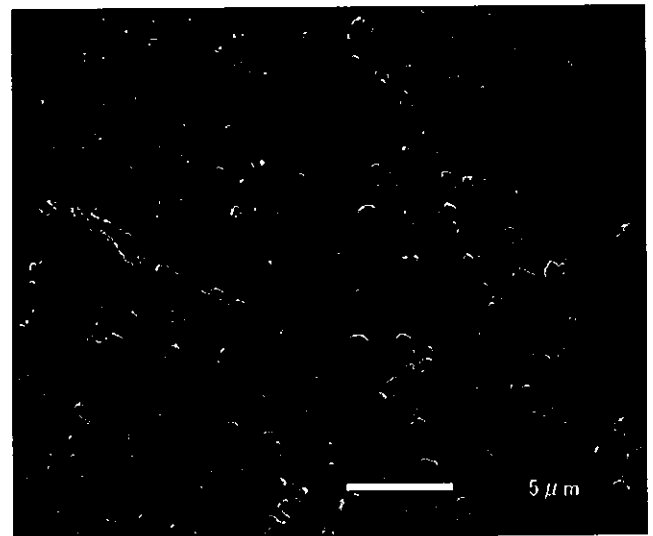
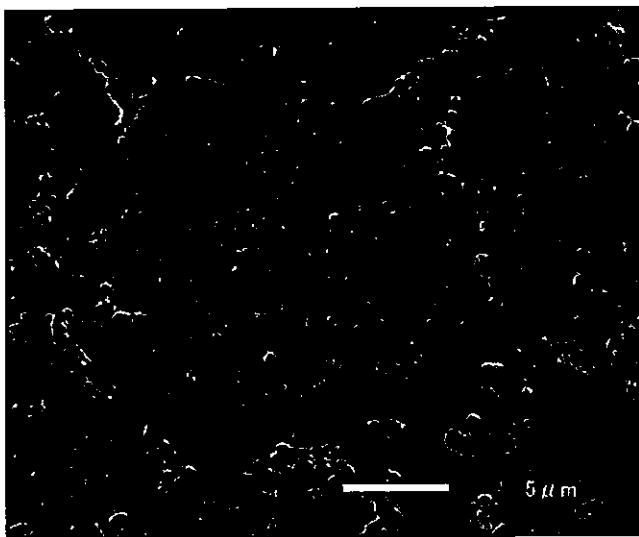
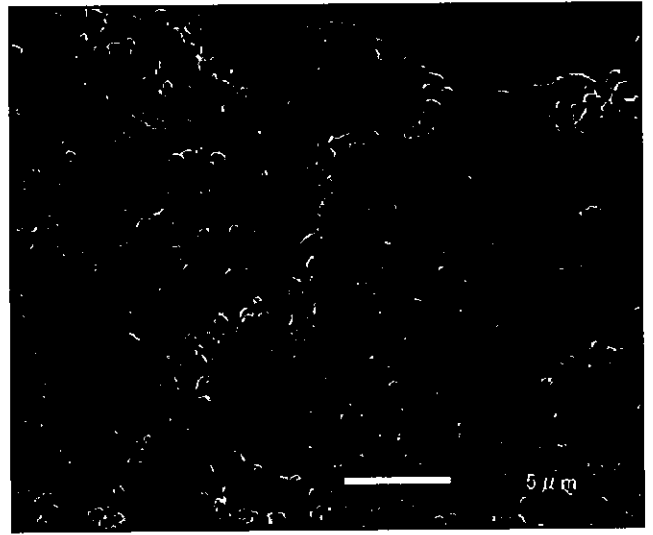
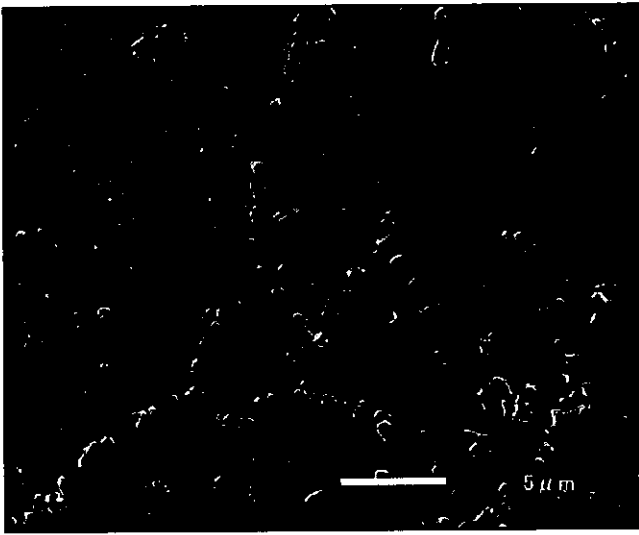
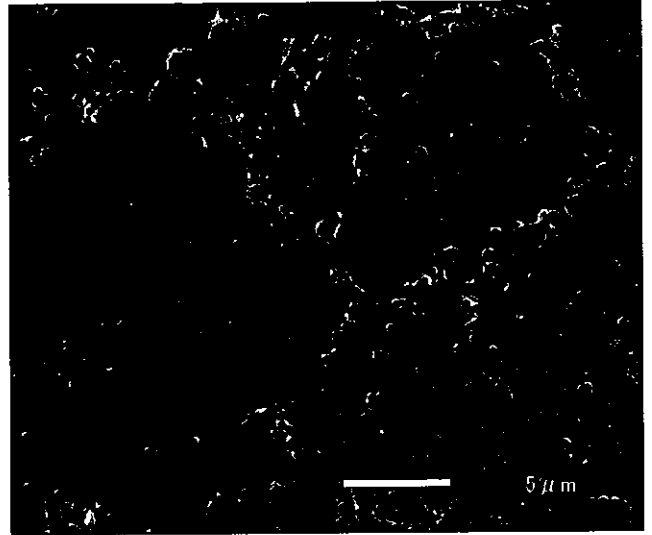
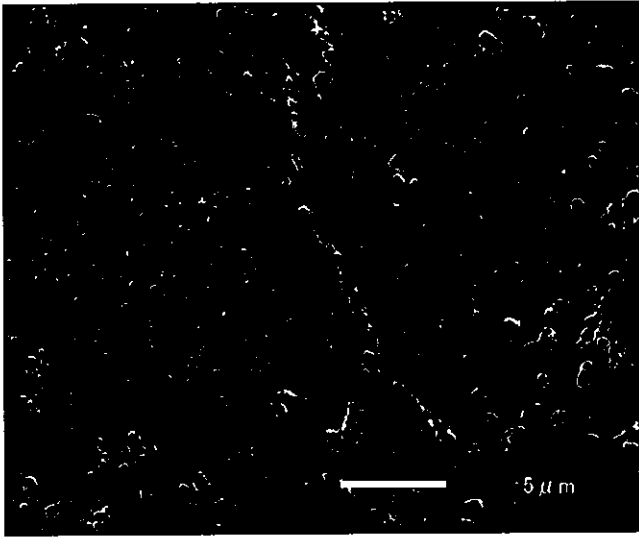


Photo II-12-9 Precipitates along grain boundary by SEM observation
Hot Reheat Pipe-Right (Circumferential weld : Base metal)

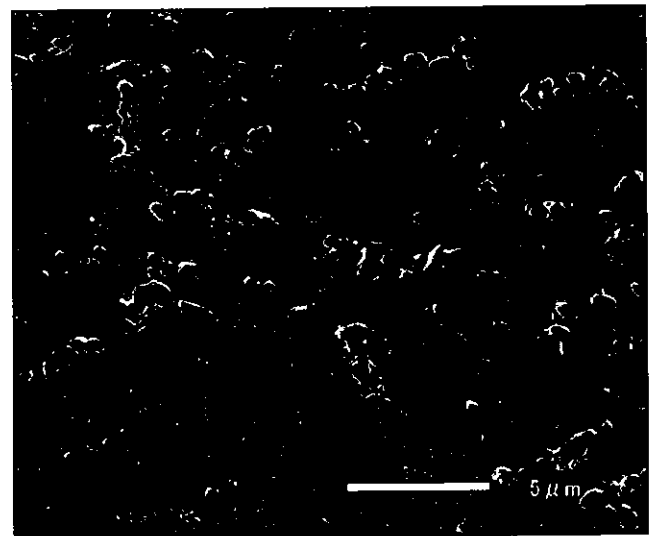
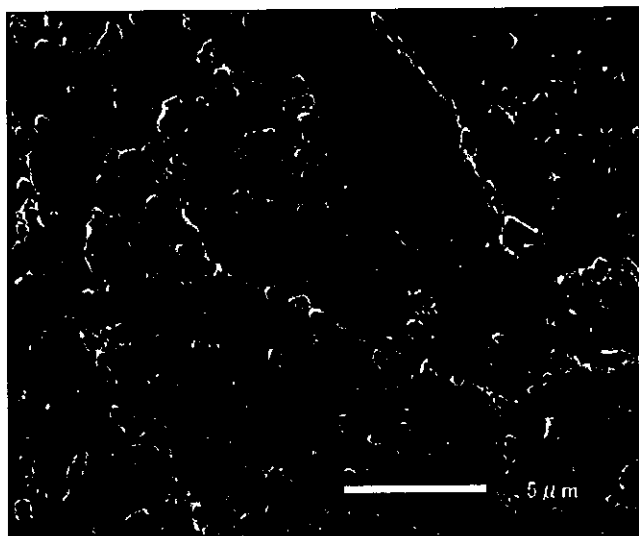
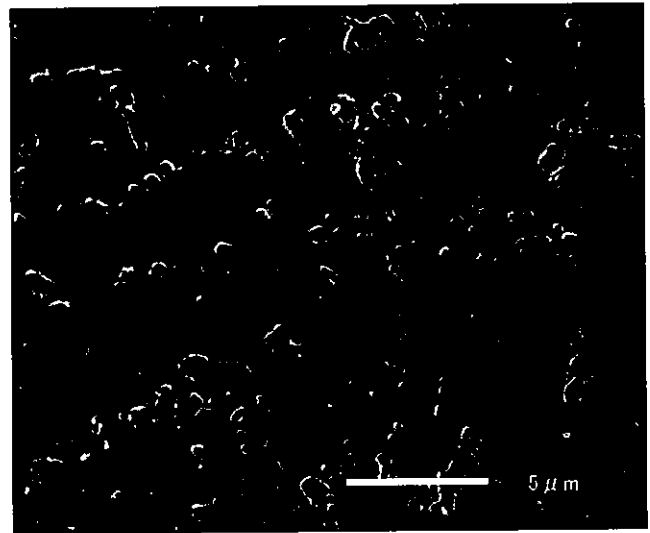
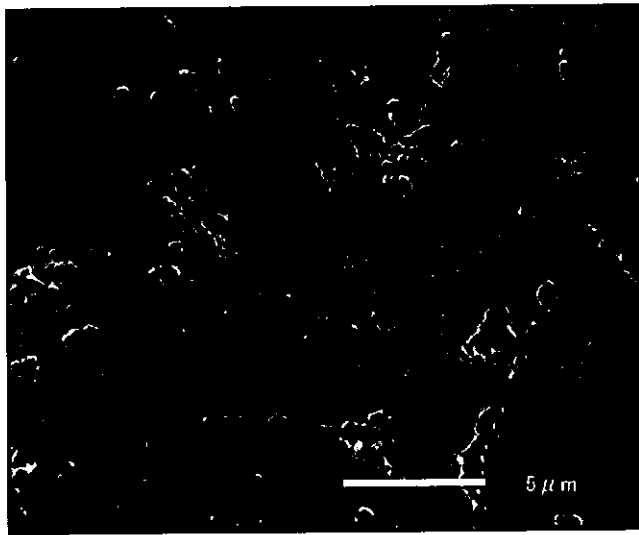
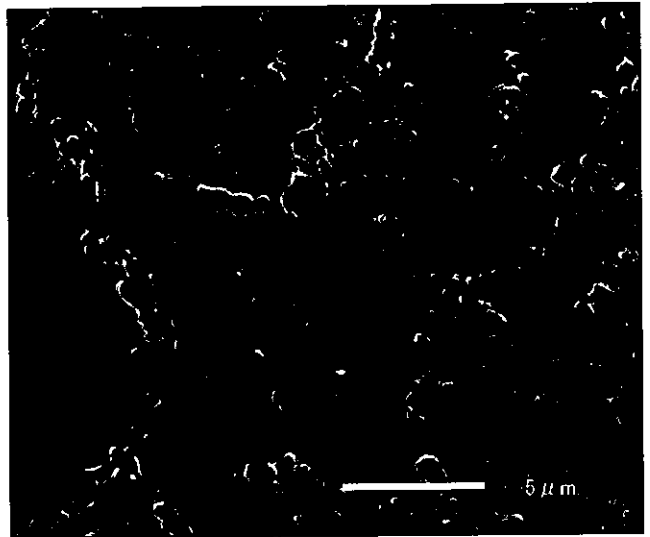
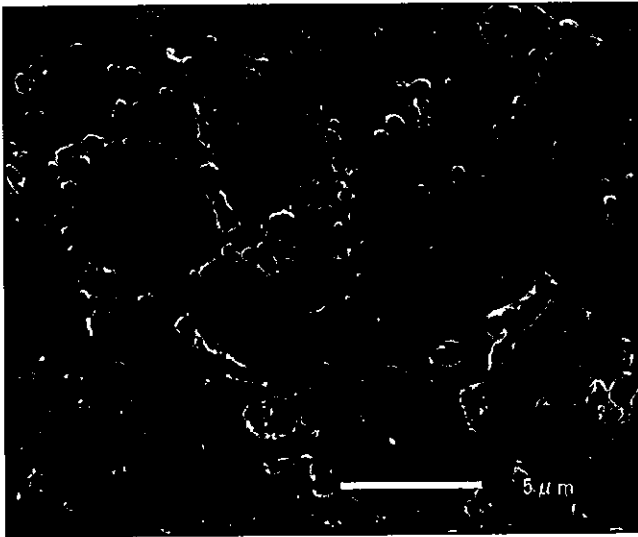
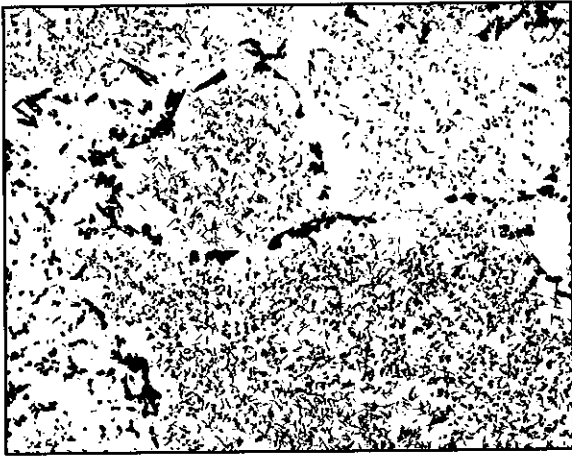
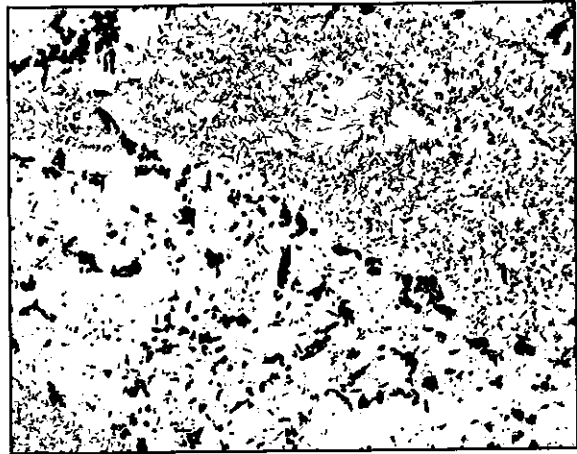


Photo II-12-10 Precipitates along grain boundary by SEM observation
Hot Reheat Pipe-Right (Circumferential weld : Fine grain HAZ)

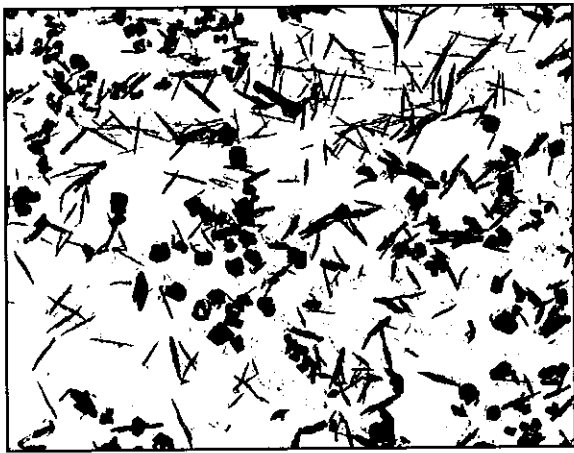
992



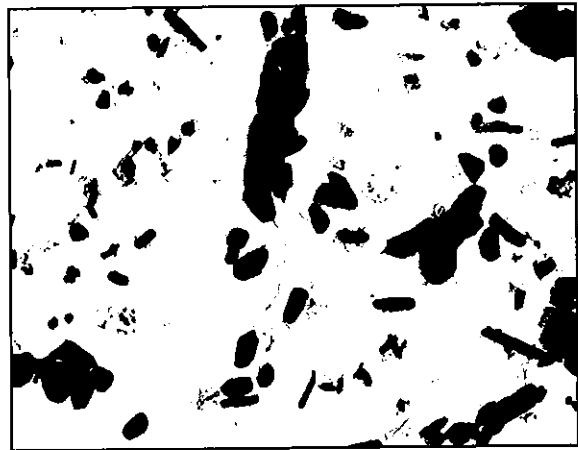
5 μ m



5 μ m



1 μ m



1 μ m



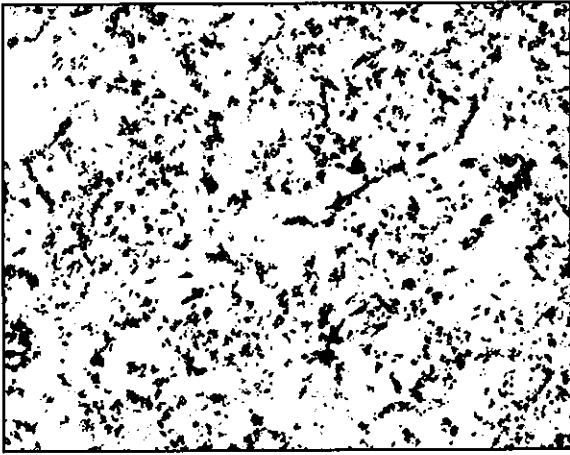
1 μ m



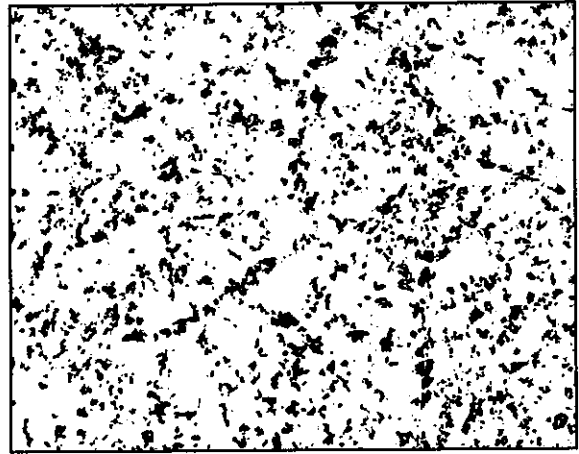
1 μ m

Photo II-12-11 Precipitates by TEM (Transmission electron microscope) observation
Hot Reheat Pipe-Right (Circumferential weld: Base metal)

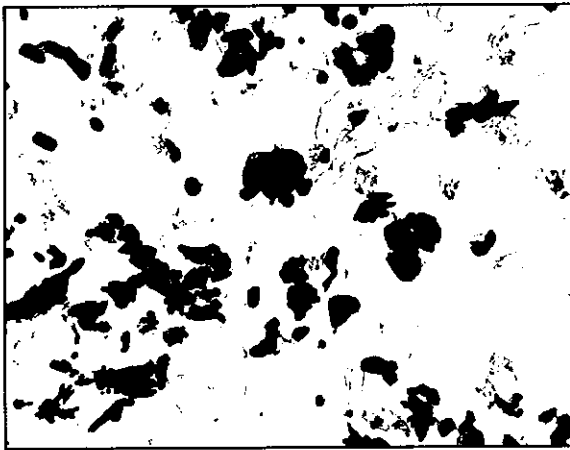
697



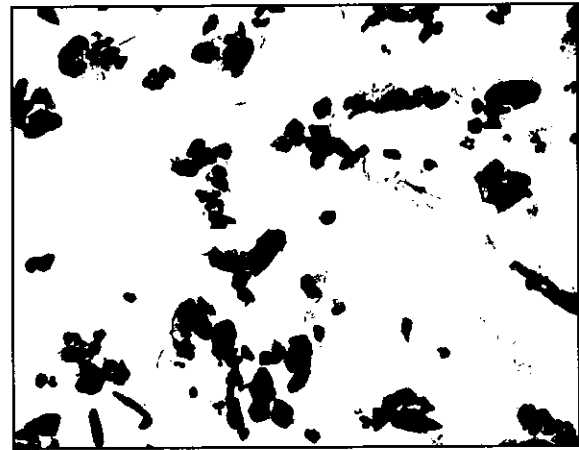
5 μm



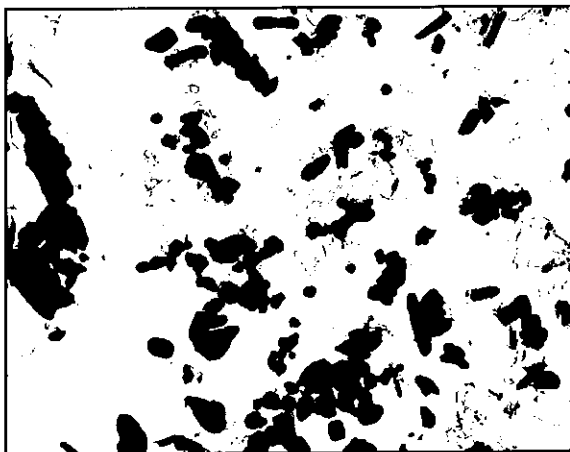
5 μm



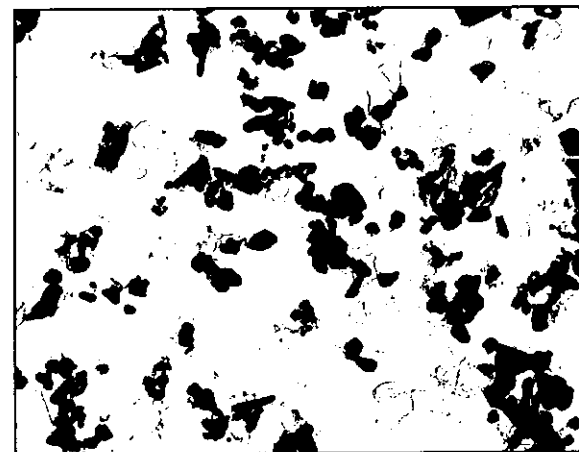
1 μm



1 μm



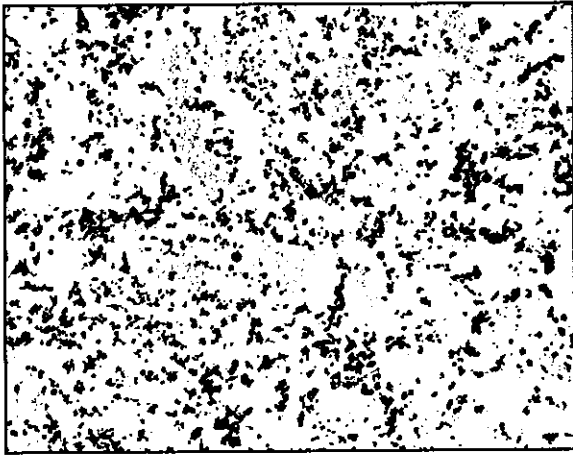
1 μm



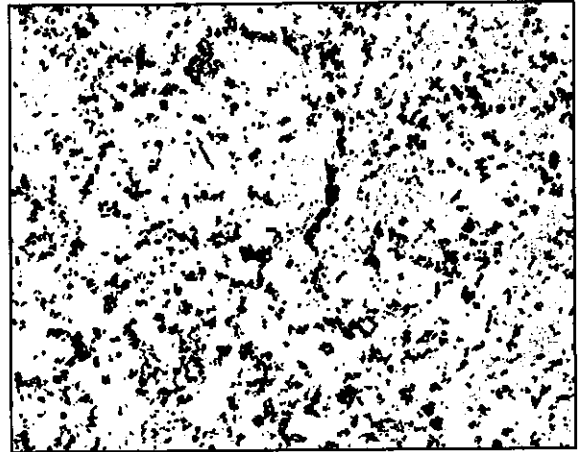
1 μm

Photo II-12-12 Precipitates by TEM (Transmission electron microscope) observation
Hot Reheat Pipe-Right (Circumferential weld: Fine grain HAZ)

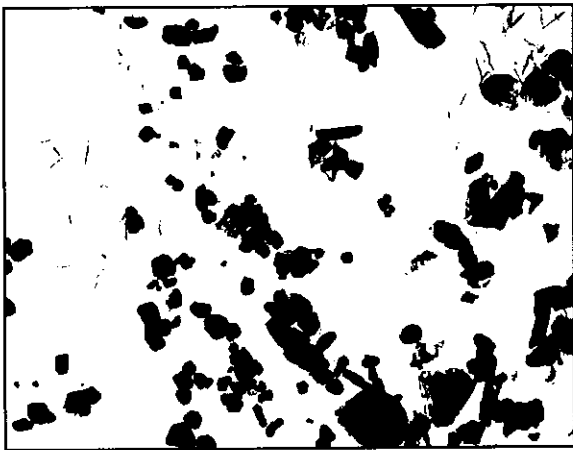
466



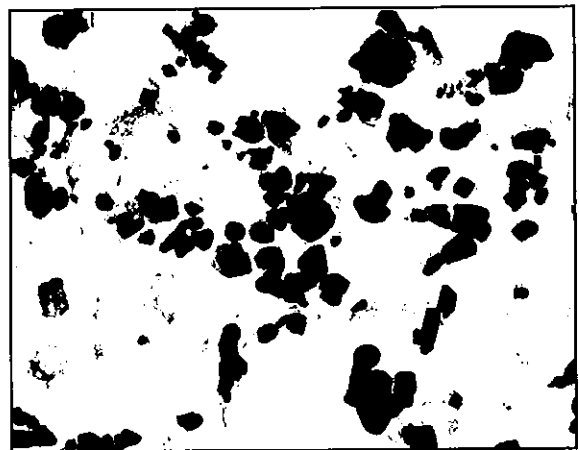
5 μ m



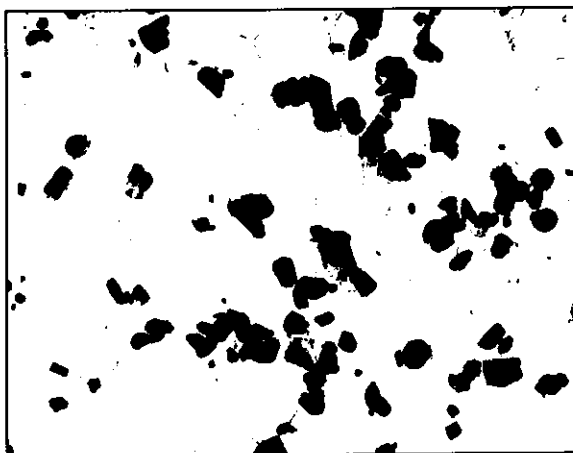
5 μ m



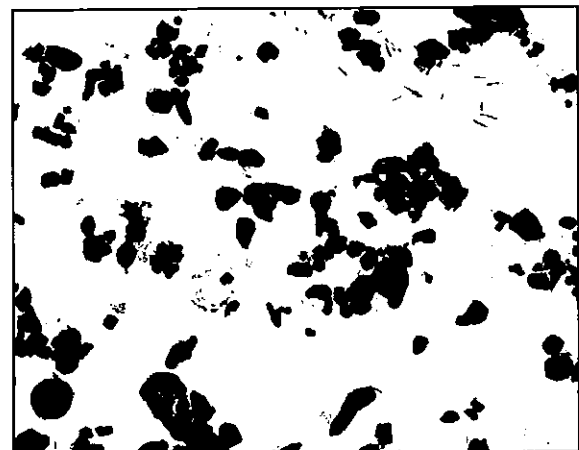
1 μ m



1 μ m



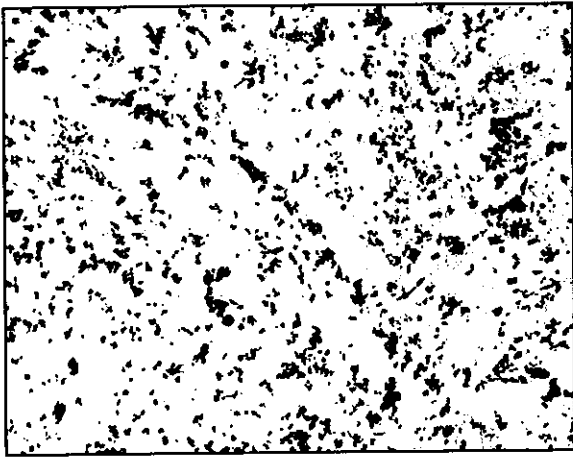
1 μ m



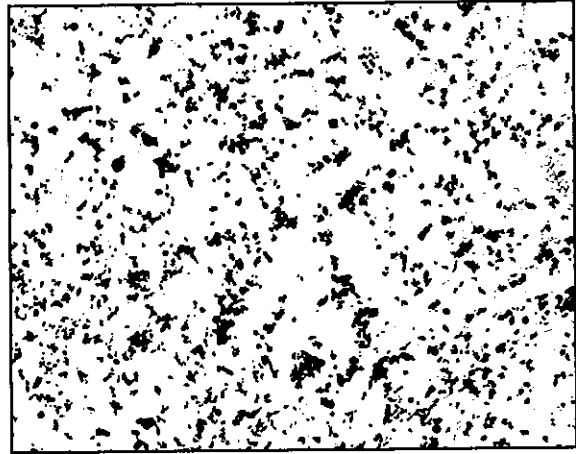
1 μ m

Photo II-12-13 Precipitates by TEM (Transmission electron microscope) observation
Hot Reheat Pipe-Right (Circumferential weld : Coarse grain HAZ)

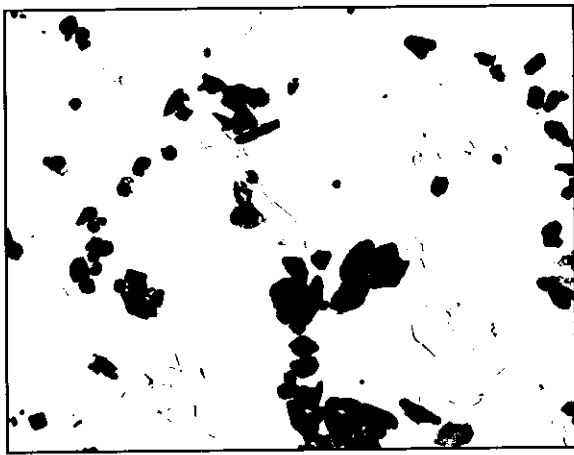
555



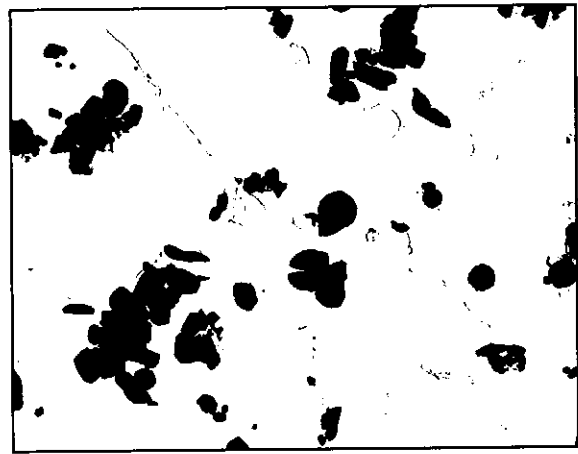
5 μ m



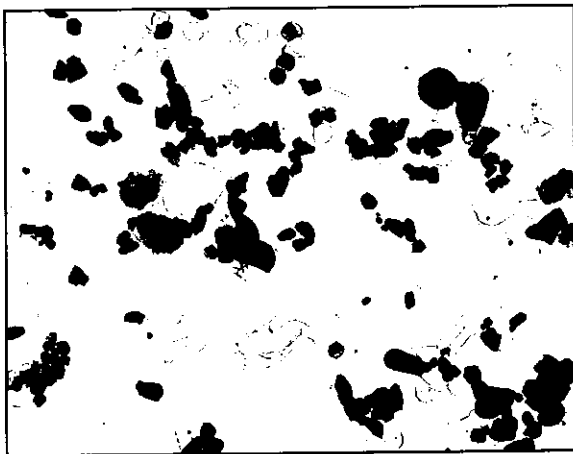
5 μ m



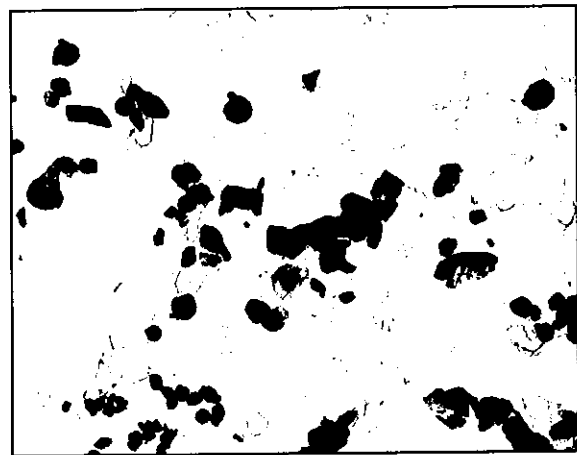
1 μ m



1 μ m



1 μ m



1 μ m

Photo II-12-14 Precipitates by TEM (Transmission electron microscope) observation
Hot Reheat Pipe-Right (Circumferential weld: Weld metal)

06/77

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 Table II -12 Unchahar #2 Boiler Findings by visual inspection

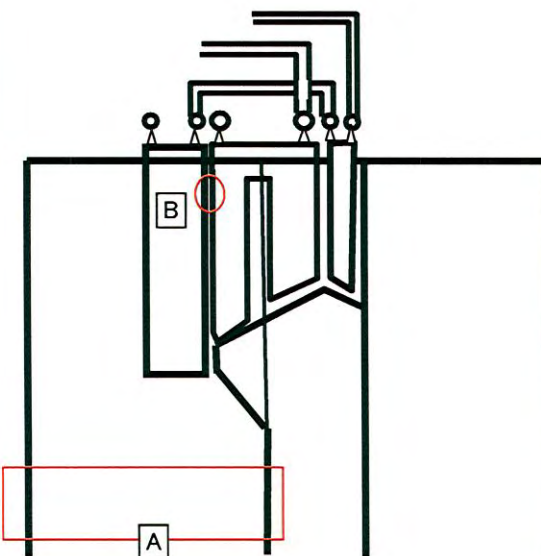




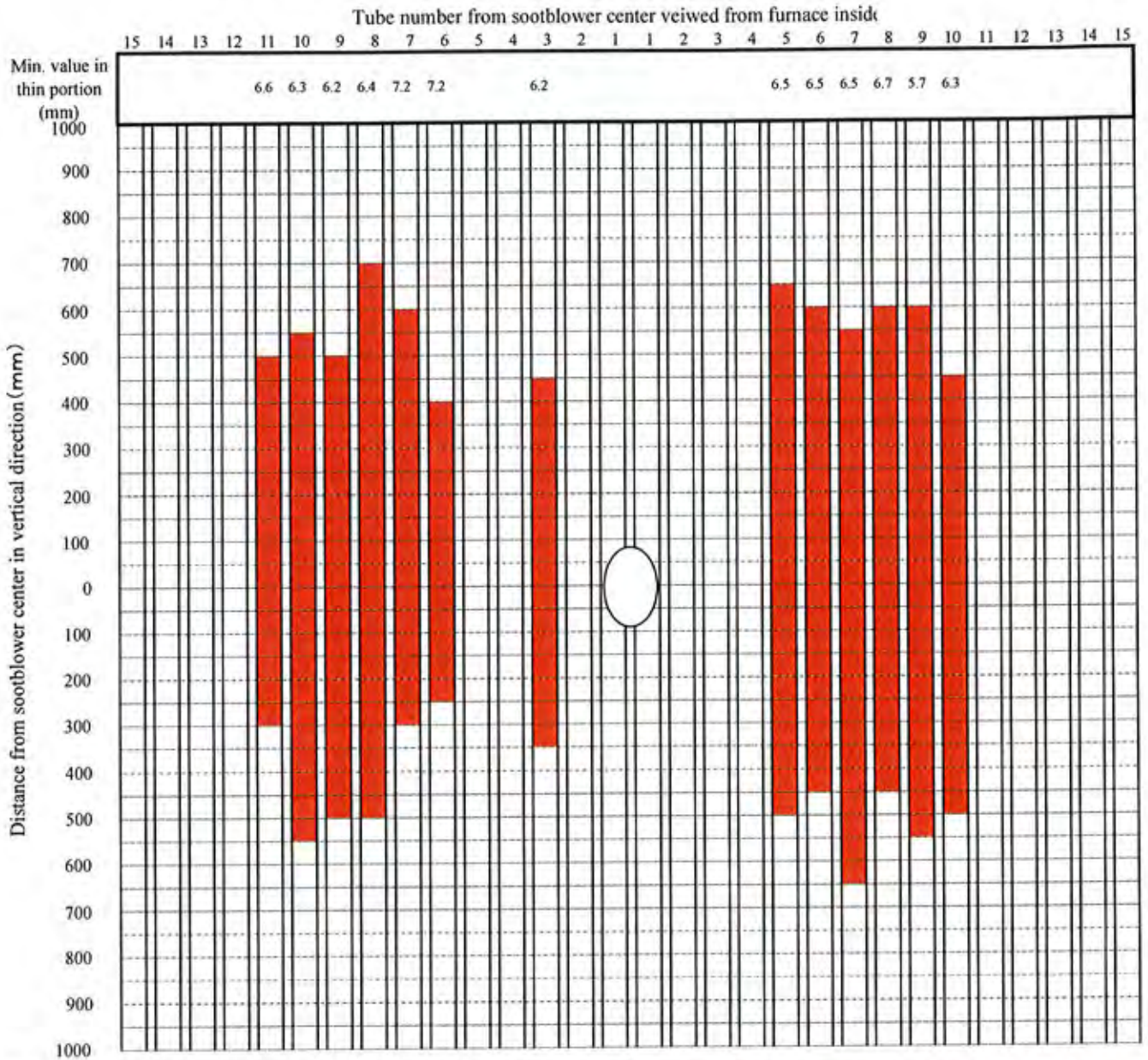
 <p>Potion noted</p>	<p>A: Erosion of water wall tube around short soot blowers.</p> <p>Erosion of a number of tubes around short soot blower. (Thickness measurement conducted) Min. 5.3mm (1st tube from left in rear wall at 2nd blower)</p>	
	<p>A: Erosion of water wall tubes around burners.</p> <p>Erosion of several tubes around burners. (Thickness measurement conducted) Min. 4.7mm</p>	
	<p>A: Erosion of water wall tubes near the corners.</p> <p>Erosion of several tubes near the corners at short soot blower level. (Thickness measurement conducted) Min. 4.2mm</p>	
	<p>B: Erosion of Platen SH rear side tubes at the highest level of soot blower.</p> <p>Slight erosion of rear side tubes at the highest level of soot blower. (Thickness measurement conducted) Min. 9.8mm</p>	

Table II-13 (Unchahar) WATER WALL Front wall Thickness Measurement Results



Tube specification SA210Gr.A $\phi 63.5 \times t 6.3$ (tsr6.1mm)

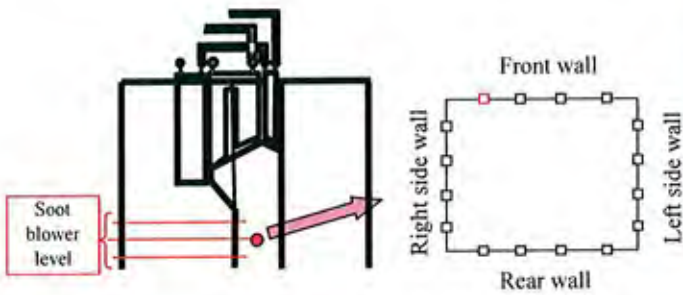
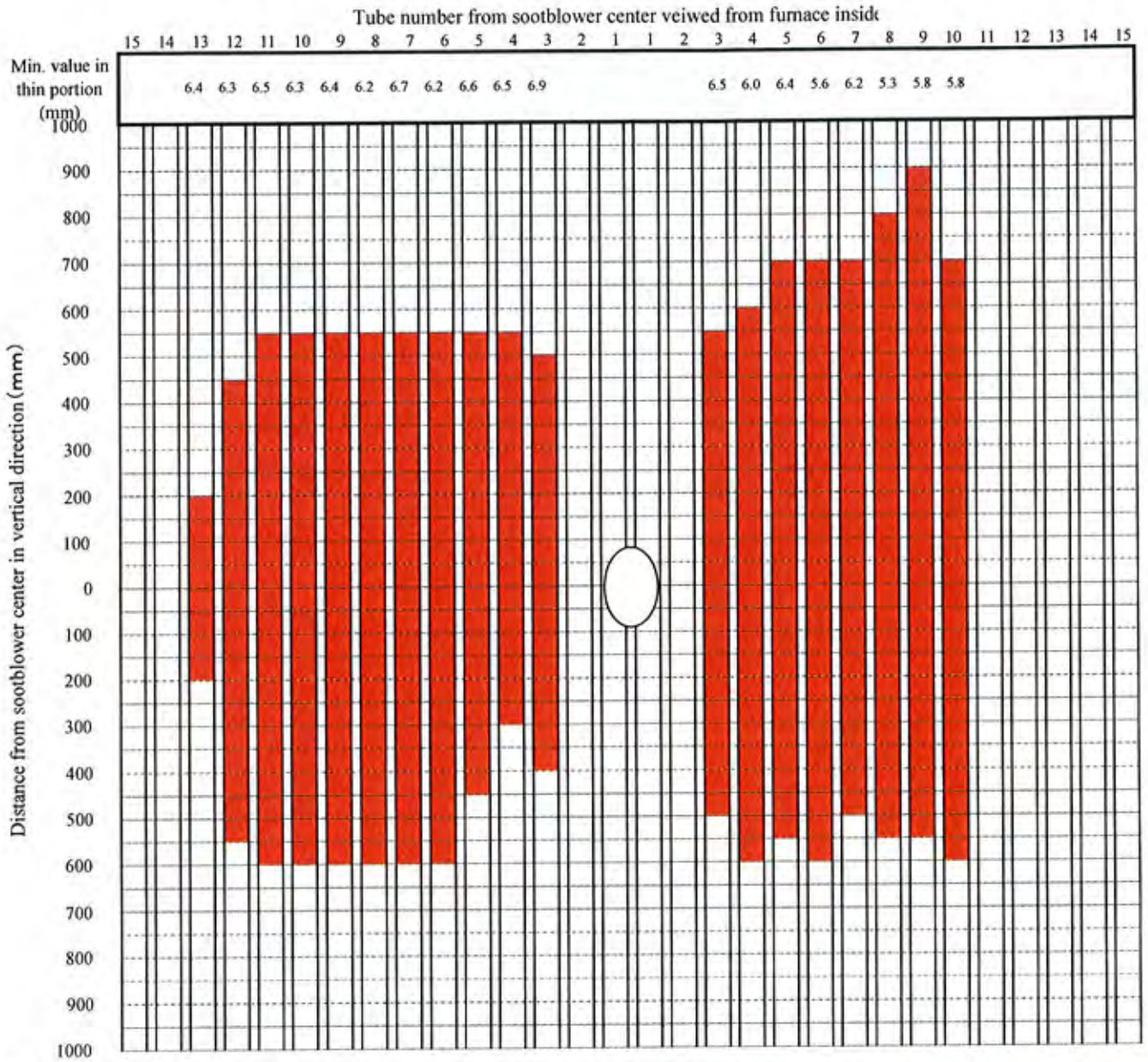
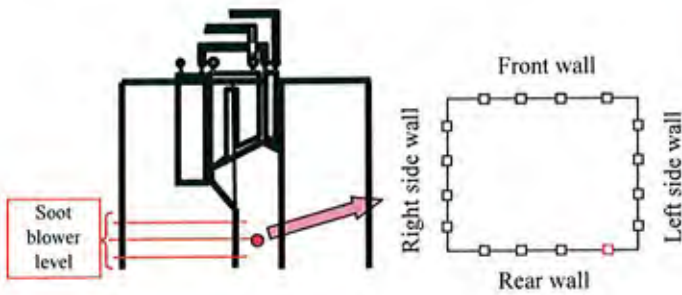


Table II-14 (Unchahar) WATER WALL Rear wall Thickness Measurement Results

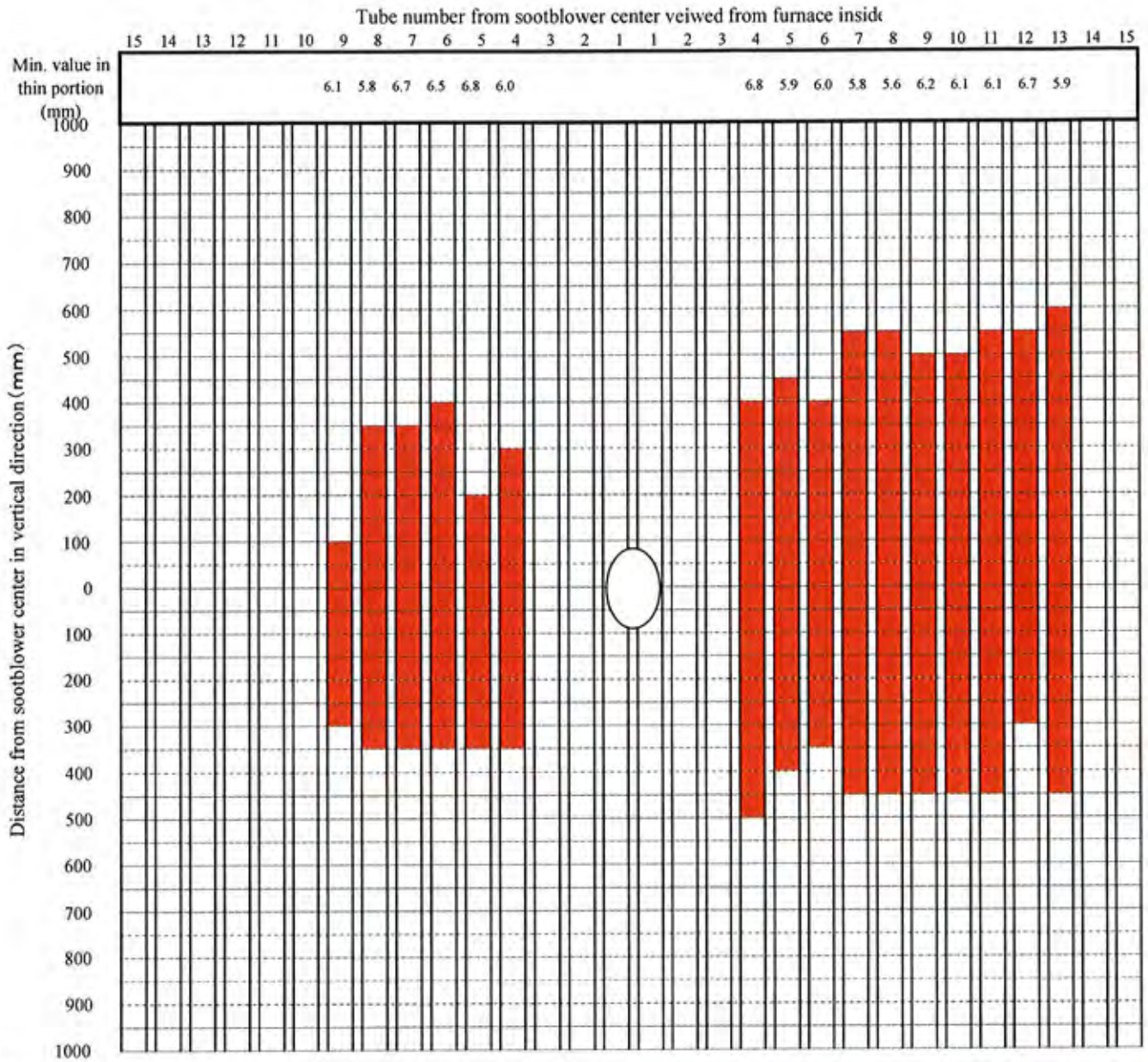


Tube specification SA210Gr.A $\phi 63.5 \times t 6.3$ (tsr 6.1mm)

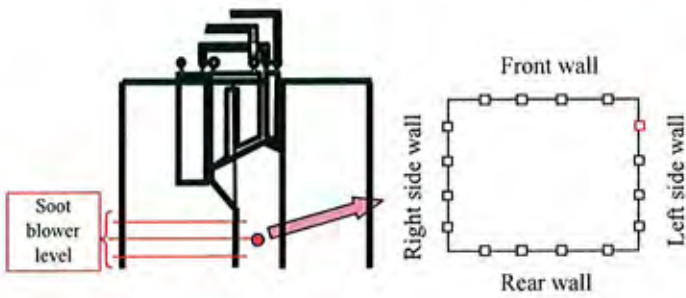


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Table II -15 (Unchar)WATER WALL Left side wall Thickness Measurement Results

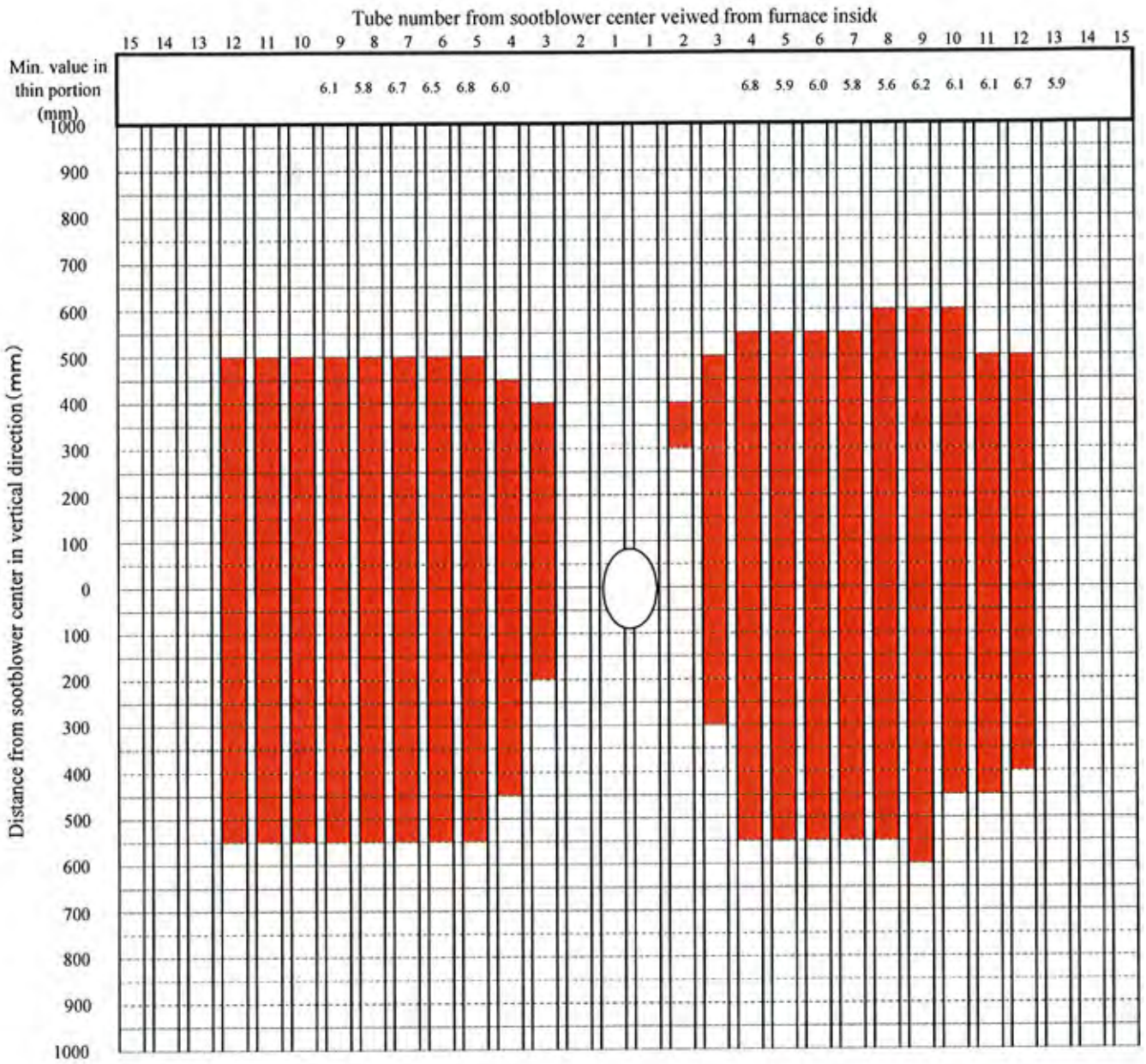


Tube specification SA210Gr.A $\phi 63.5 \times t 6.3$ (tsr6.1mm)

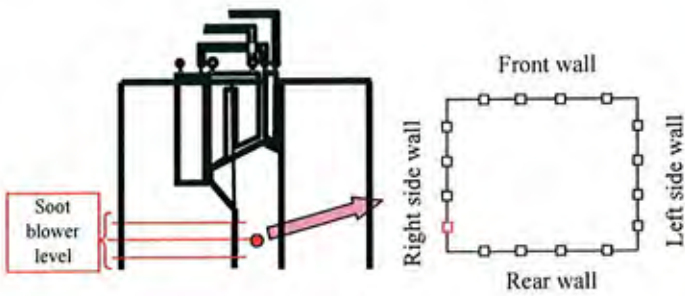


44

Table II -16 (Unchahar)WATER WALL Right side wall Thickness Measurement Results

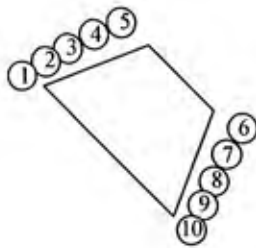
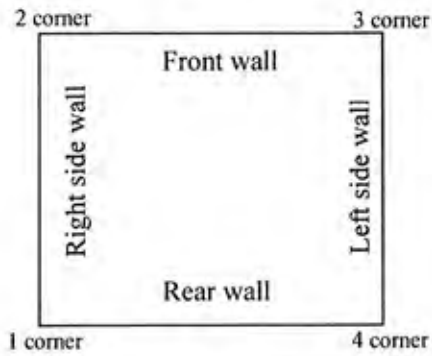


Tube specification SA210Gr.A $\phi 63.5 \times t 6.3$ (tsr6.1mm)



568

Table II -17 (Unchahar) WATER WALL around burner Thickness Measurement Results



Number of tubes around burner

Tube specification: SA210Gr.A $\phi 63.5 \times t 6.3$ (tsr6.1mm)

Tube No.	1 corner	2 corner	3 corner	4 corner
1	-	-	-	-
2	6.5	-	-	-
3	6.2	-	-	-
4	-	-	-	-
5	-	-	-	-
6	-	-	-	6.2
7	-	-	-	4.7
8	6.4	5.7	-	5.1
9	6.1	-	-	-
10	6.5	-	-	-



Erosion part at 1 corner



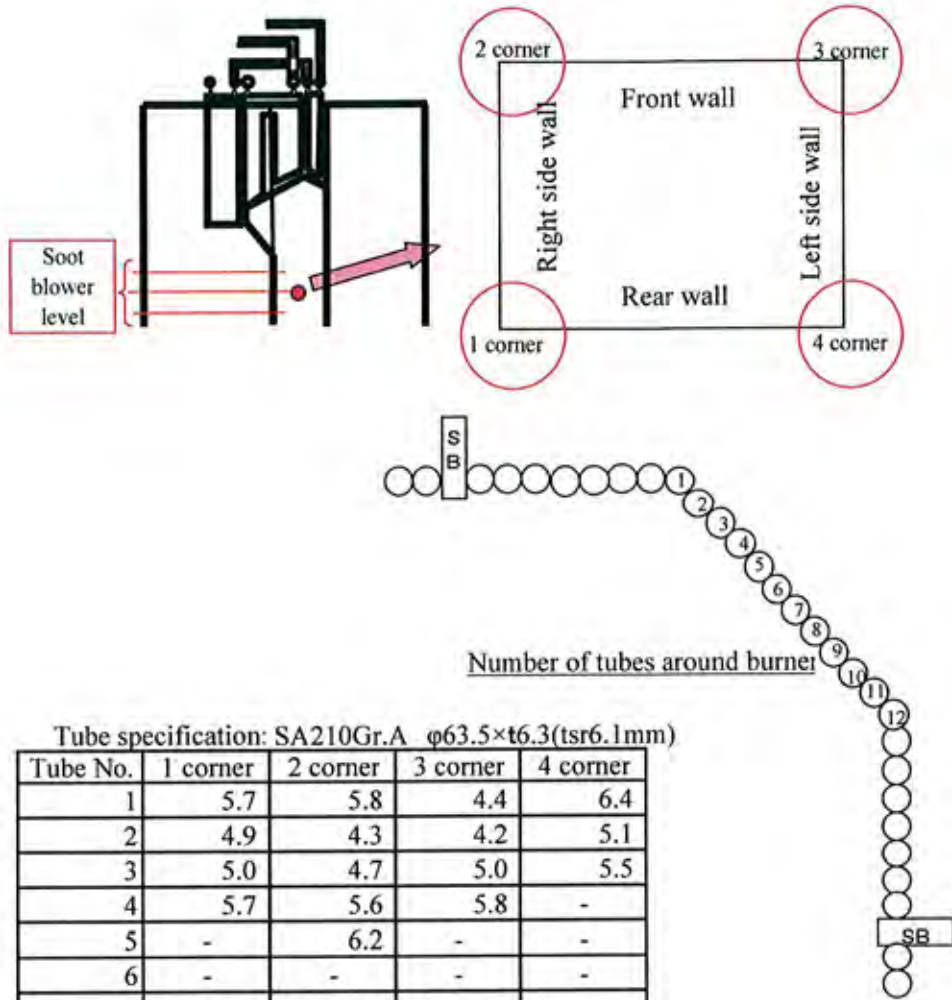
Erosion part at 2 corner



Erosion part at 3 corner

96x

Table II -18 (Unchahar) WATER WALL corner tube Thickness Measurement Results



Number of tubes around burner

Tube specification: SA210Gr.A $\phi 63.5 \times t 6.3$ (tsr6.1mm)

Tube No.	1 corner	2 corner	3 corner	4 corner
1	5.7	5.8	4.4	6.4
2	4.9	4.3	4.2	5.1
3	5.0	4.7	5.0	5.5
4	5.7	5.6	5.8	-
5	-	6.2	-	-
6	-	-	-	-
7	-	-	-	-
8	-	7.2	-	-
9	-	6.2	-	-
10	6.9	6.2	6.3	-
11	6.3	6.0	6.8	6.0
12	6.5	6.4	-	6.1

1 corner aspect



2 corner aspect



3 corner aspect



4 corner aspect



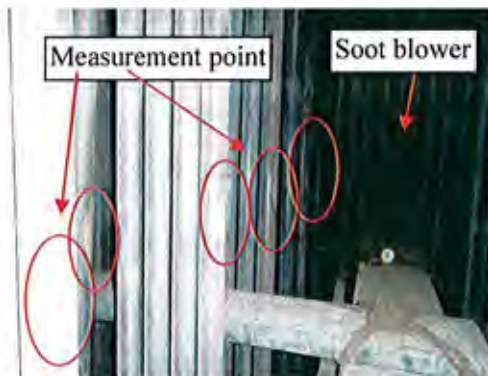
667

Table II -19 (Unchahar)Platen SH Thickness Measurement Results

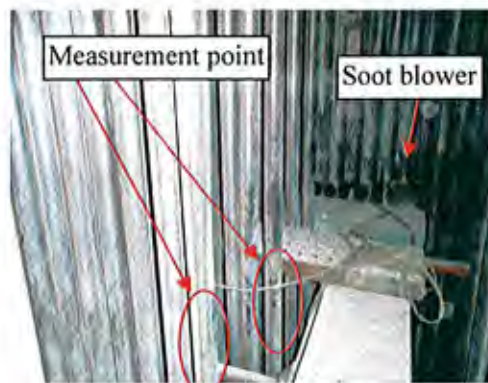
Tube specification: SA213T22 $\phi 51.0 \times t 9.6$ (tsr9.4mm)



Panel No. (From left)	Soot blower level			
	1st soot blower level ●			2nd soot blower level ●
	1st tube from rear	2nd tube from rear	5th tube from rear	
1	9.8	-	-	10.0
2	9.9	-	-	10.0
3	10.0	-	-	10.2
4	10.2	-	-	10.4
5	9.9	-	-	10.2
6	10.3	-	-	10.3
7	10.1	-	-	10.2
8	10.1	-	-	10.1
9	9.9	10.1	-	10.1
10	10.1	-	-	10.3
11	10.1	10.0	-	10.2
12	10.1	-	-	10.2
13	10.0	-	-	10.1
14	9.9	-	-	10.0
15	10.1	-	10.2	10.3
16	10.1	-	-	10.3
17	9.9	-	-	9.9
18	10.2	-	-	10.2
19	10.2	-	-	10.1
20	10.1	-	-	10.2
21	10.0	-	-	10.1
22	10.3	-	-	10.3
23	10.3	-	-	10.2
24	10.3	-	-	10.2
25	10.0	-	-	10.1
26	10.2	-	-	10.2
27	10.2	-	-	10.2
28	10.2	-	-	10.3
29	10.2	-	-	10.3



Around 1st soot blower level

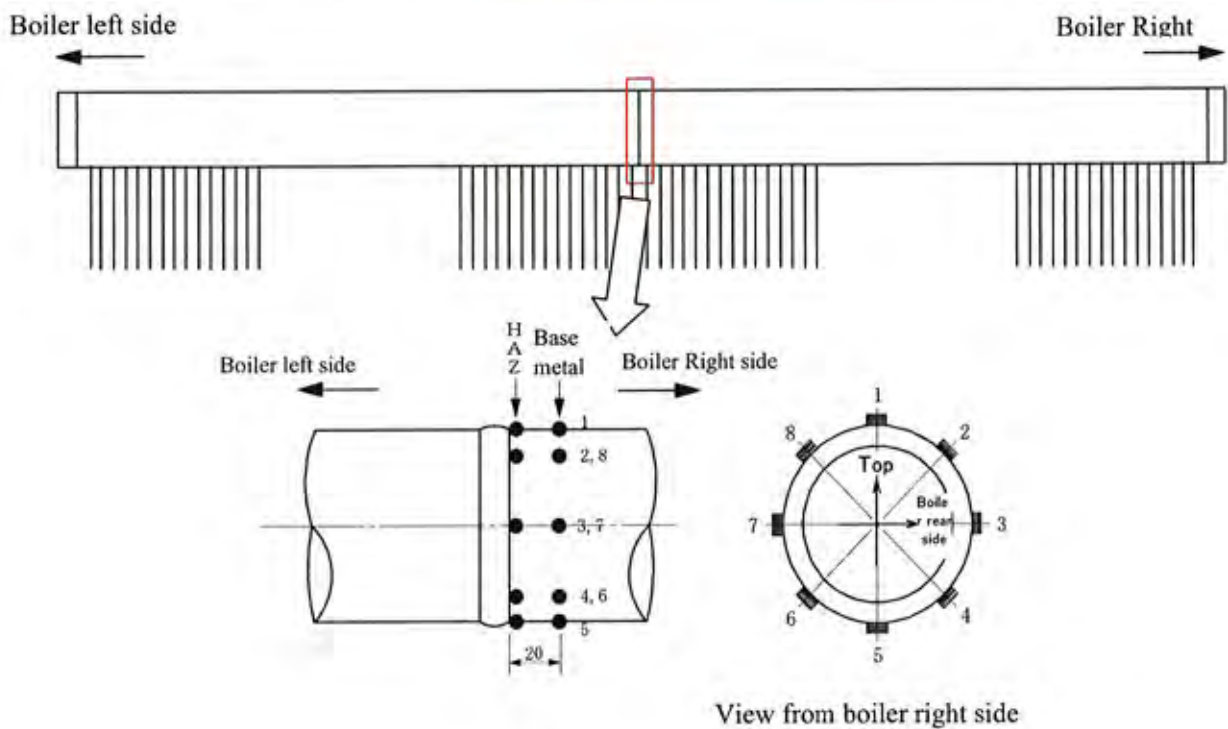


Around 2nd soot blower level

863

Table II -20 (Unchahar) Final SH Outlet Header Outside Diameter Measurement Results

Components	Material	Designed OD	Position	Region	Measured value (mm)				Averaged (mm)	(Averaged measured value-Designed OD) /Designed OD(%)
					1↔5	2↔6	3↔7	4↔8		
Final SH Outlet Header	SA335 P-22	457.2mm	Upstream side (Elbow side)	Base metal	460.60	460.73	460.40	-	460.57	+0.74
				HAZ	460.46	460.12	460.19	-	460.26	+0.67



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Table II -21 (Unchar) De-Superheater Pipe Outside Diameter Measurement Results

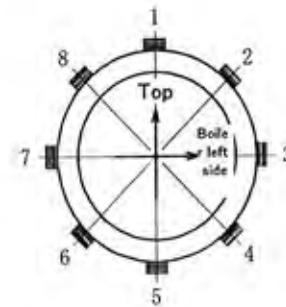
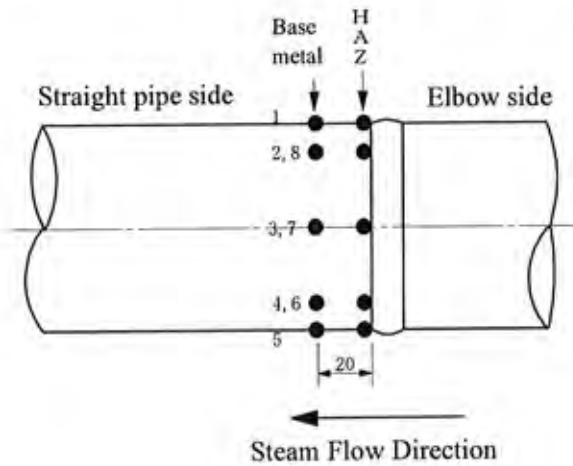
Components	Material	Designed OD	Position	Region	Measured value (mm)				Averaged (mm)	(Averaged measured value-Designed OD) /Designed OD(%)
					1↔5	2↔6	3↔7	4↔8		
De-Superheater Pipe (Right)	SA335 P-12	406.4mm	Downstream side (Straight pipe side)	Base metal	408.08	407.37	409.15	408.43	408.26	+0.46
				HAZ	407.66	407.06	408.15	407.97	407.71	+0.32
De-Superheater Pipe (Left)	SA335 P-12	406.4mm	Downstream side (Straight pipe side)	Base metal	408.26	408.29	407.81	408.40	408.19	+0.44
				HAZ	408.02	407.63	408.26	407.65	407.89	+0.37



Measurement point of right De-superheater pipe



Measurement point of left De-superheater pipe



View from boiler downstream

SPD