

Report No.: XXXX

INSPECTION REPORT

To:	XXXXXXXXXXX	Attn:	xxxxxx
From:	Troika Inspection Service Co., Ltd	Report Date:	XXXXXXX
Project No.:	: XXXXXXXX		
Vendor Name	: xxxxxxxx		
Factory Name	: XXXXXXXXX		X
Factory Address	: XXXXXXXXX		
Order No. / PO No.	: XXXXXXXXX		
Product description:	: Pipe		
Inspection Date:	: XXXXXXX		
、 ·	ails of inspections, tests etc. carried out/witness	ed)	\$
Equipment description:	Pipe		
I.T.P. line number	Inspection Activity		Results
XXXXXX	Marking check	2	 Accepted without deviation Accepted with deviation Reject
XXXXXX	Visual quality check		Accepted without deviation Accepted with deviation Reject
xxxxxx	Dimension check		 Accepted without deviation Accepted with deviation Reject
xxxxxx	Witness PMI test		 Accepted without deviation Accepted with deviation Reject
XXXXXX	Witness mechanical tests		Accepted without deviation Accepted with deviation Reject
xxxxxx	Witness intergranular corrosion		 Accepted without deviation Accepted with deviation Reject
XXXXXX	Document review		Accepted without deviation

2.0 Reason for visit

The purpose of this visit is to carry out the visual, dimension inspection and test for pipe listed in PO XXXX according to purchaser order and specification.

3.0 Documentation used

DOCUMENT NUMBER	REV. No.	TITLE	Approval Status
XXXXXXXX	Х	QCP, Plan	By purchaser
XXXXXXXX	Х	Purchase Order	By purchaser

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ASME SA 213/A 213M X	Specification for seamless ferritic and austenitic alloy-steel boiler super-heater, and heat-exchanger tubes	By purchaser
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4.0 Details of inspection performed

4.1. Reference documents:

→ [document PO: YLETC20160909]

During inspection, following items are provided for inspection,

	During inspection, following items are provided for inspection,				
No.	Description	QTY			
1	Stainless steel seamless 21.3x2.77 5-5.8 ASTM A312 TP304 plain end	24 meters	4pcs		
2	Stainless steel seamless 26.7x2.87 5-5.8 ASTM A312 TP304 plain end	24 meters	4pcs		
3	Stainless steel seamless 33.4x3.38 5-5.8 ASTM A312 TP304 plain end	500 meters	95pcs		
4	Stainless steel seamless 48.3x3.68 5-5.8 ASTM A312 TP304 plain end	25 meters	5pcs		
5	Stainless steel seamless 60.3x2.77 5-5.8 ASTM A312 TP304 BW	130 meters	26pcs		
6	Stainless steel seamless 73x3.05 5-5.8 ASTM A312 TP304 BW	6 meters	1pc		
7	Stainless steel seamless 88.9x3.05 5-5.8 ASTM A312 TP304 BW	430 meters	77pcs		
8	Stainless steel seamless 114.3x3.05 5-5.8 ASTM A312 TP304 BW	1100 meters	201pcs		
9	Stainless steel seamless 168.3x3.4 5-5.8 ASTM A312 TP304 BW	470 meters	83pcs		
10	Stainless steel seamless 88.9x5.49 5-5.8 ASTM A312 TP304 BW	28 meters	5pcs		
11	Stainless steel seamless 114.3x6.02 5-5.8 ASTM A312 TP304 BW	29 meters	5pcs		
12	Stainless steel seamless 219.1x8.18 5-5.8 ASTM A312 TP304 BW	53 meters	9pcs		

4.2 Marking check

4.2.1Sample size: [100%]

Marking on the pipes Logo Yinlong SSCO/ETC 100NBxSCH10S 114.3mm O.D x3.05mm W. THK ASTM A312 TP304 SEAMLESS STEEL HEAT NUMBER. 11L336 The marking is varied with size, WT and heat no. Remark: The result need to subject to buyer's evaluation.

4.3 Visual quality check

4.3.1 Sample size: [100%]

During the inspection,100% of pipes were selected for visual quality check, no obvious defect was found on the pipes, 21.3x2.77 5-5.8, 26.7x2.87 5-5.8, 33.4x3.38 5-5.8, 48.3x3.68 5-5.8 are Plain end, the rest are BW end.

Remark: The results were acceptable

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4.4 Dimension check

4.4.1 Sample size: [10% per type]

4.4.2 Reference document: [ASME A312, ANSI B36.19, ASME B16.25] unit: mm

Item 1 Stainless steel seamless 21.3x2.77 5-5.8 ASTM A312 TP304 plain end 1pc

Required	OD	WT	Length
	21.3(+0.4/-0.8)	2.77(+20%/-12.5%)	5000-5800
Checked	21.3/21.4	2.65/2.66	6050

Item 2 Stainless steel seamless 26.7x2.87 5-5.8 ASTM A312 TP304 plain end 1pc

Required	OD	WT	Length
	26.,7(+0.4/-0.8)	2.87(+20%/-12.5%)	5000-5800
Checked	26.6/26.6	2.75/2.93	6040

Item 3 Stainless steel seamless 33.4x3.38 5-5.8 ASTM A312 TP304 plain end 10pcs

Required -	OD	WT	Length
	33.4(+0.4/-0.8)	3.38(+20%/-12.5%)	5000-5800
Checked	33.2-33.5	3.2-3.42	5250-5720

Item 4 Stainless steel seamless 48.3x3.68 5-5.8 ASTM A312 TP304 plain end 1pc

Required	OD	WT	Length
	48.3(+0.4/-0.8)	3.68(+20%/-12.5%)	5000-5800
Checked	48.2/48.4	3,45/3.47	6010

Item 5 Stainless steel seamless 60.3x2.77 5-5.8 ASTM A312 TP304 BW 3pcs

Poquirod	OD		WT	Length
Required 60.	60.3(+0.8/-0.8)		2.77(+20%/-12.5%)	5000-5800
Checked	60.2-60.4		2.6-2.79	5230-5620

Item 6 Stainless steel seamless 73x3.05 5-5.8 ASTM A312 TP304 BW 1pc

Required	OD	WT	Length
Required 73(+0	73(+0.8/-0.8)	3.05(+20%/-12.5%)	5000-5800
Checked	72.8/73.2	2.84/3.27	6004

Item 7 Stainless steel seamless 88.9x3.05 5-5.8 ASTM A312 TP304 BW 8pcs

Required	ÓD	WT	Length
	88.9(+0.8/-0.8)	3.05(+15%/-12.5%)	5000-5800
Checked	88.7-89.4	2.94-3.26	5515-5670

Item 8 Stainless steel seamless 114.3x3.05 5-5.8 ASTM A312 TP304 BW 20pcs

	OD	WT	Length
Required	114.3(+0.8/-0.8)	3.05(+22.5%/- 12.5%)	5000-5800
Checked	113.5-114.6	2.71-3.25	5120-5785

Item 9 Stainless steel seamless 168.3x3.4 5-5.8 ASTM A312 TP304 BW 9pcs

Required	OD	WT	Length
Required	168.3(+1.6/-0.8)	3.4(+22.5%/-12.5%)	5000-5800
Checked	167.8-168.6	3.22-3.6	5315-5800

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Length

Doguirod		00					Len	
Required		88.9(+0.8/	/-0.8)		5.49(+15	5000-5		
Checked		88.8/89.2			5.12/5.41		591 1	
m 11 Stainl	ess steel	seamless 114	4.3x6.02 5-5	.8 ASTM	A312 TI	P304 BW 1pc		
Required		OD			WT		Length	
			0 0 0)		6.02(+22.5%/-		5000-	
			114.3(+0.8/-0.8)			12.5%)		
Checked 114.2/114.3			6.0	3/5.95	60 ⁻			
m 12 Stainl	ess steel	seamless 219	9.1x8.18 5-5	.8 ASTM	A312 TI	P304 BW 1pc	C	
		OD				Len		
Required		219.1(+1.6/-0.8)			8.18(+22.5%/- 12.5%)		5000-5	
Checked		219/219	9.1			8/8.02	602	
	e size: [5	% per type] Iment: [ASTM	I A312]					
Item 1. A	SME A31	2 TP304 Heat	No. 11L333			Y		
	C%	Si%	Mn%	P%	S%	Cr%	Ni%	
Min	-	-	-	-		18	8	
Max	0.08	1.0	2.0	0.045	0.03	20	11	
Result	/	/	1.25		/	18.76	8.05	
Item 2. A	SME A31	2 TP304 Heat	No. 11L333					
	C%	Si%	Mn%	P%	S%	Cr%	Ni%	
Min	-	-	-	-	-	18	8	
Max	0.08	1.0	2.0	0.045	0.03	20	11	
Result	/		1.24	/	/	18.72	8.01	
Item 3. A	SME A31	2 TP304 Heat	No. 11L333					
	C%	Si%	Mn%	P%	S%	Cr%	Ni%	
Min		-	-	-	-	18	8	
Max	0.08	1.0	2.0	0.045	0.03	20	11	
Result			1.2-1.3	/	/	18.51-18.74	8.02-8.06	
Item 4. A		2 TP304 Heat						
	C%	Si%	Mn%	P%	S%	Cr%	Ni%	
Min	-	-	-	-	-	18	8	
Max	0.08	1.0	2.0	0.045	0.03	20	11	
Result	/	/	1.08	/	/	18.59	8.04	
Item 5. A	SME A31	2 TP304 Heat	No. 11L333					
	C%	Si%	Mn%	P%	S%	Cr%	Ni%	
Min	-	-	-	-	-	18	8	
Max	0.08	1.0	2.0	0.045	0.03	20	11	

WT

Item 10 Stainless steel seamless 88.9x5.49 5-5.8 ASTM A312 TP304 BW 1pc

OD

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Result	/	/	1.07/1.08	/	/	18.51/18.67	8.17/8.18
	SME A312 T	P304 Heat	No. 11L333			1	
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-		18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	1.2	/	/	18.62	8.02
Item 7. A	SME A312 T	P304 Heat	No. 11L333				
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	0.95-1.14	/	/	18.41-18.93	8.01-8.93
	SME A312 T	P304 Heat	No. 11L336				
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Result	/	/	0.95-1.12	/	/	18,57-18,85	8.02-8.88
Item 9. AS	SME A312 T	P304 Heat	No. 11L336				•
	C%	Si%	Mn%	P%	S%	Cr%	Ni%
Min	-	-	-	-	-	18	8
Max	0.08	1.0	2.0	0.045	0.03	20	11
Max Result	0.08	1.0 /	2.0 0.96-1.11	0.045	0.03 /	20 18.48-18.8	11 8.01-8.13
Result	/	/	-	/			
Result	/	/	0.96-1.11	/			
Result	/ ASME A312	/ TP304 Hea	0.96-1.11 at No. 11L333	/		18.48-18.8	8.01-8.13
Result Item 10. A	/ ASME A312 C%	/ TP304 Hea Si%	0.96-1.11 at No. 11L333 Mn%	/ 3 P%		18.48-18.8 Cr%	8.01-8.13 Ni%
Result Item 10. A Min	/ ASME A312 <u>C%</u> -	/ TP304 Hea Si% -	0.96-1.11 at No. 11L333 Mn% -	/ 3 P%	7 5%	18.48-18.8 Cr% 18	8.01-8.13 Ni% 8
Result Item 10. A Min Max Result	/ ASME A312 <u>C%</u> - 0.08 /	/ TP304 Hea Si% - 1.0 /	0.96-1.11 at No. 11L333 Mn% - 2.0	/ 3 0.045 7	7 5%	18.48-18.8 Cr% 18 20	8.01-8.13 Ni% 8 11
Result Item 10. A Min Max Result	/ ASME A312 <u>C%</u> - 0.08 /	/ TP304 Hea Si% - 1.0 /	0.96-1.11 at No. 11L333 Mn% - 2.0 1.18	/ 3 0.045 7	7 5%	18.48-18.8 Cr% 18 20	8.01-8.13 Ni% 8 11
Result Item 10. A Min Max Result	/ ASME A312 C% - 0.08 / ASME A312	/ TP304 Hea Si% - 1.0 / TP304 Hea	0.96-1.11 at No. 11L333 Mn% - 2.0 1.18 at No. 11L336	/ 3 0.045 7	7 S% - 0.03 /	18.48-18.8 Cr% 18 20 18.55	8.01-8.13 Ni% 8 11 8.02
Result Item 10. A Min Max Result Item 11. A	/ ASME A312 C% - 0.08 / ASME A312 C%	/ TP304 Hea Si% - 1.0 / TP304 Hea	0.96-1.11 at No. 11L333 Mn% - 2.0 1.18 at No. 11L336	/ 3 0.045 7	7 S% - 0.03 /	18.48-18.8 Cr% 18 20 18.55 Cr%	8.01-8.13 Ni% 8 11 8.02 Ni%
Result Item 10. A Min Max Result Item 11. A Min	/ ASME A312 <u>C%</u> - 0.08 / ASME A312 <u>C%</u> -	/ TP304 Hea Si% - 1.0 / TP304 Hea Si% -	0.96-1.11 at No. 11L333 Mn% - 2.0 1.18 at No. 11L336 Mn%	/ 3 0.045 7 5 P% -	7 S% 0.03 / S% -	18.48-18.8 Cr% 18 20 18.55 Cr% 18	8.01-8.13 Ni% 8 11 8.02 Ni% 8
Result Item 10. A Min Max Result Item 11. A Min Max Result	/ ASME A312 C% - 0.08 / ASME A312 C% - 0.08 /	/ TP304 Hea Si% - 1.0 / TP304 Hea Si% - 1.0 /	0.96-1.11 at No. 11L333 Mn% - 2.0 1.18 at No. 11L336 Mn% 2.0	/ 3 0.045 7 9 - 0.045 7 - 0.045 7	7 S% 0.03 / S% -	18.48-18.8 Cr% 18 20 18.55 Cr% 18 20 18 20	8.01-8.13 Ni% 8 11 8.02 Ni% 8 11
Result Item 10. A Min Max Result Item 11. A Min Max Result	/ ASME A312 C% - 0.08 / ASME A312 C% - 0.08 / ASME A312	/ TP304 Hea Si% - 1.0 / TP304 Hea Si% - 1.0 / TP304 Hea	0.96-1.11 at No. 11L333 Mn% - 2.0 1.18 at No. 11L336 Mn% 2.0 1.21	/ 3 0.045 7 - 0.045 - 0.045 / 5	7 S% 0.03 / S% -	18.48-18.8 Cr% 18 20 18.55 Cr% 18 20	8.01-8.13 Ni% 8 11 8.02 Ni% 8 11
Result Item 10. A Min Max Result Item 11. A Min Max Result	/ ASME A312 C% - 0.08 / ASME A312 C% - 0.08 /	/ TP304 Hea Si% - 1.0 / TP304 Hea Si% - 1.0 /	0.96-1.11 at No. 11L333 Mn% - 2.0 1.18 at No. 11L336 Mn% 2.0 1.21 at No. 11L336	/ 3 0.045 7 9 - 0.045 7 - 0.045 7	7 S% - 0.03 / - 0.03 /	18.48-18.8 Cr% 18 20 18.55 Cr% 18 20 18.6	8.01-8.13 Ni% 8 11 8.02 Ni% 8 11 8.03
Result Item 10. A Min Max Result Item 11. A Min Max Result Item 12. A	/ ASME A312 C% - 0.08 / ASME A312 C% - 0.08 / ASME A312	/ TP304 Hea Si% - 1.0 / TP304 Hea Si% - 1.0 / TP304 Hea Si%	0.96-1.11 at No. 11L333 Mn% - 2.0 1.18 at No. 11L336 Mn% 2.0 1.21 at No. 11L336	/ 3 0.045 7 - 0.045 - 0.045 / 5	7 S% - 0.03 / - 0.03 /	18.48-18.8 Cr% 18 20 18.55 Cr% 18 20 18.6 Cr%	8.01-8.13 Ni% 8 11 8.02 Ni% 8 11 8.03 Ni%

Remark: the results were acceptable.

[witness mechanical test] 4.5.3 Sample size: [1pc each type] 4.5.4 Reference document: [ASTM A312, ASTM A370]

Item 1. ASME A312 TP304 Heat No. 11L333 Hardness Tensile strength(Mpa) Yield strength(MPa) Elongation % Flattening test (HRB) 35 505 205 Min -Max 90 ----Result 78/81/81.5 701 351 65 Acceptable

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Item 2. A	ASME A312 TP3	04 Heat No. 11L333			
	Hardness	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
	(HRB)	- · · · <i>i</i>		•	
Min		505	205	35	-
Max	90	-	-	-	-
Result	78/78/79	682	341	66	Acceptable
Item 3. A		04 Heat No. 11L333			
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	
Max	90	-	-	-	-
Result	78.5/74.5/76. 5	665	333	62	Acceptable
Item 4. A	ASME A312 TP3	04 Heat No. 11L333			
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min	(****=)	505	205	35	-
Max	90	-	-		-
Result	78.5/79/79	674	344	58	Acceptable
		04 Heat No. 11L333		-	
	Hardness				- - - - - - - - -
	(HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-		-	-
Result	79.5/80/77.5	713	357	54	Acceptable
Item 6. A	ASME A312 TP3	04 Heat No. 11L333			
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min	, <i>i</i>	505	205	35	-
Max	90		-	-	-
Result	79/78.5/79	655	328	56	Acceptable
Item 7. A	ASME A312 TP3	04 Heat No. 11L333			
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	75/78/79	696	348	52	Acceptable
		04 Heat No. 11L336	L		·
	Hardness		Violal otros atta (MD-)		
	(HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	75/77/79	713	357	56	Acceptable
Item 9. A	ASME A312 TP3	04 Heat No. 11L336			
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	74/80/80	703	390	58	Acceptable
		304 Heat No. 11L333	1		



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	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-	-	-
Result	75/77/79	649	325	60	Acceptable
Item 11.	ASME A312 TP	304 Heat No. 11L336			
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	Κ-
Max	90	-	-	-	
Result	75/77/79	649	325	60	Acceptable
Item 12. ASME A312 TP304 Heat No. 11L336					
	Hardness (HRB)	Tensile strength(Mpa)	Yield strength(MPa)	Elongation %	Flattening test
Min		505	205	35	-
Max	90	-	-		-
Result	78/78.5/79.5	576	288	64	Acceptable

Remark: the results were acceptable.

[witness intergranular corrosion]

4.5.5 Sample size: [1pc each type]

4.5.6 Reference document: [ASTM A262 method E]

During the inspection, 12 pieces of specimens were performed the intergranular corrosion test, after 16h test duration in the CuSO₄ + H_2SO_4 solution, no cracks were observed on bent area at 20X magnification, the Microscopic structure to be observed from 250 X magnification could not be witnessed due to the limited of test equipment.

Remark: the results were subjected to buyer's evaluation.

5.0. Result of Inspection

Accepted without deviation Accepted with deviation

(See Punch list)

Reject (See the deviation for Rejection)

6.0. Quality Records reviewed and attached:

Intergranular corrosion report in Chinese Mechanical test report PMI report MTC (delivery condition: annealed pickled & Passivated), The results of documents review were subject to buyer's evaluation.

7.0 Progress Status

After the inspection the pipes were held and waiting for client's instruction before to next step;

8.0 Next Forecasted Inspection Date:

TBA

9.0 Attendees

- Mr. XXX supplier inspector
- Mr. XXX Vendor Inspector
- Mr. XXX TIS inspector on behalf of XXX

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TIS Troika Inspection Service Your Quality Solution Partner

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Any deviation & PUNCH attached : Yes 🛛 No, 🗌	Punch No.: XXXX
IRN attached : Yes \Box No \boxtimes ,	IRN No.:

10. Photo Report





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Prepared by : xxxx	Reviewed by : xxxxx
Signed: xxx	
Date: xxxxx	

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