



Interim
 Final

INSPECTION REPORT N° INS/T-12/1210

BV Job nr: INS/T-12/1210

PROJECT: TPI for and pipes and 3PE coating	Ref: INS/T-12/1210
BV Client: Chengdu Derbo Steel Co.,Ltd	P/o nr: NA <i>(client to BV)</i>
Manufacturer: Chengdu Derbo Steel Co.,Ltd	P/o nr: NA <i>(client to Manufacturer)</i>
Inspection requested by: Chengdu Derbo Steel Co.,Ltd	
IMPORT LICENCE NO.1979 DATED 110809	
HEAD OFFICE APPROVAL NO.9 DATED 110811	
L/C NO. 1341-9/11H04	

DESCRIPTION	LENGTH (m)	QTY
Carbon steel ERW pipe API 5L X60 18" 9.5 PSL2 3PE coating	30000	2540

DOCUMENTS OF REFERENCE : See continuation sheet for additional documents: Yes No

Title	Reference n°	Rev.	Approved by	Date
Steel pipe for pipeline	APL 5L	44	API	2008
Polyethylene coating for steel pipes and fittings requirements and testing	DIN 30670	/	DIN	1991

<p>INSPECTIONS :</p> <p><u>Inspection place & Date or Period:</u> Daquzhuang Town, Tianjin, China. On Jun 18-19, 2012</p> <p><u>Stage of inspection :</u></p> <p><input type="checkbox"/> Before manufacturing <input type="checkbox"/> During manufacturing <input checked="" type="checkbox"/> Final <input type="checkbox"/> Packing</p> <p><u>Type of inspection:</u></p> <p><input type="checkbox"/> Pre-inspection meeting <input checked="" type="checkbox"/> Document and QC record review <input checked="" type="checkbox"/> Visual examination, checks <input checked="" type="checkbox"/> Witnessing tests <input type="checkbox"/> Manufacturing progress status <input type="checkbox"/> Vendor assessment <input checked="" type="checkbox"/> Final inspection <input type="checkbox"/> Packing <i>(for details see continuation sheet)</i></p> <p><u>Stamping :</u></p> <p><input type="checkbox"/> No <input checked="" type="checkbox"/> <input type="checkbox"/> </p>	<p><u>Results of inspection</u> : <input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory</p> <p><u>Non Conformities Reports (NCR):</u></p> <p>o NCR's issued during reported period :NA</p> <p>o List of outstanding NCR's : NA</p> <p><u>Main Conclusions & Remarks:</u> (for details see continuation sheet) BV surveyor performed the final inspection, the dimension check, visual quality inspection, witness mechanical properties test, chemical analysis test, total thickness of 3PE coating check, Witness peeling test & holiday test and document review were satisfied.</p> <p><u>Next visit scheduled:</u> NA</p>
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Description of the inspections carried out:

➤ **Introduction** (*Attendees, BV scope of work*)

This is to report that inspector of Bureau Veritas, Mr. Jason Yang, performed inspection as per relevant documents and standard at manufacturer's shop, Details are described as follow:

BV scope of work

- 5% visual & dimensional check
- Witness chemical and mechanical test per each heat no.
- Total thickness of 3PE coating check randomly
- Witness peeling test
- Witness holiday test randomly
- Marking check randomly
- Documents review

➤ **Applicable Documents & Status of Approval** (*Type of documents reviewed & endorsed*)

- APL 5L: Steel pipe for pipeline
- DIN 30670: Polyethylene coating for steel pipes and fittings requirements and testing

➤ **Manufacturing Progress Status** (*Quantities*)

During the inspection, the pipes had been completed for Bureau Veritas inspector inspection.

➤ **Details of inspection activities carried out with respect to scope of work** (**Each activity elaborated in detail**)

Inspection for flanges and fittings

• **5% visual & dimensional checks**

Visual quality was checked randomly. The result was acceptable. The dimension was checked randomly; mainly cover thickness, outer diameter. The result was in accordance with the requirement of relevant standard. The result was acceptable.

The details for the measurement of dimension checking as bellow

STANDARD		ACTUAL	
THICKNESS	OD	THICKNESS	OD
9.53	457.2	8.8~9.0	456~458

• **Witness chemical and mechanical test per heat no.**

BV inspector witnessed the chemical, tensile test and impact test at 0°C according to each heat number, the test results showed that these goods met the requirement of standard.

The details for test as bellow

Chemical test

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HEAT NO.		C	Mn	P	S	Nb	V	Ti
	Standard	≤0.22	≤1.40	≤0.025	≤0.015	Nb+V+Ti≤0.15		
21107145	Actual	0.06	1.21	0.016	0.003	0.032	0.005	0.015
11106681	Actual	0.07	1.18	0.013	0.007	0.028	0.005	0.015
11106684	Actual	0.07	1.22	0.015	0.005	0.029	0.005	0.019
11106602	Actual	0.06	1.22	0.015	0.006	0.031	0.005	0.016
11106683	Actual	0.07	1.22	0.014	0.008	0.030	0.005	0.014
21107082	Actual	0.06	1.22	0.015	0.006	0.032	0.005	0.017
11106600	Actual	0.06	1.24	0.013	0.006	0.032	0.005	0.014
11106601	Actual	0.06	1.23	0.013	0.009	0.030	0.005	0.017
11106603	Actual	0.06	1.26	0.016	0.008	0.031	0.005	0.019
21107144	Actual	0.07	1.19	0.013	0.008	0.030	0.005	0.020
11106682	Actual	0.06	1.26	0.013	0.006	0.030	0.005	0.015
11106599	Actual	0.07	1.27	0.013	0.003	0.030	0.004	0.014
21107147	Actual	0.07	1.21	0.013	0.007	0.028	0.005	0.013
11106685	Actual	0.06	1.26	0.013	0.006	0.030	0.005	0.015
11106680	Actual	0.06	1.26	0.013	0.005	0.030	0.004	0.014
11106683	Actual	0.06	1.25	0.013	0.006	0.030	0.005	0.015

Mechanical test

HEAT NO.		TS(MPa)	YS(MPa)	EL(Longitudinal)	Impacting Energy(Transverse)
	Standard	517~758	414~565	≥22.5	≥27J
21107145	Actual	585	465	37	148
11106681	Actual	585	465	35	148
11106684	Actual	560	440	36.5	138
11106602	Actual	560	455	38	146
11106683	Actual	560	450	35.5	148
21107082	Actual	555	440	36	165
11106600	Actual	565	450	38	160
11106601	Actual	555	450	36	158
11106603	Actual	570	450	37	156
21107144	Actual	560	445	37	148
11106682	Actual	550	445	34.5	140
11106599	Actual	550	440	38	138
21107147	Actual	560	445	37	148
11106685	Actual	550	445	36	123
11106680	Actual	550	440	36.5	140
11106683	Actual	570	450	36.5	142

- **Total thickness of 3PE coating check randomly**
Total thickness of 3PE coating was randomly checked by BV inspector. Total thickness was 2.5mm as per client requirement, the actual was 2340~3050um. The result was acceptable.
- **Witness peeling test**
Peeling test was witnessed by BV inspector. The standard of peel strength was 35 N/cm, the


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actual was 105N/cm. The result was acceptable.

- **Witness holiday test randomly**

Holiday test was randomly witnessed by BV inspector. The voltage was 25KV, no spark was found. The test result was acceptable.

- **Marking check randomly**

Marking check was randomly performed by BV inspector. Traced marking was on bare pipes as per client request. 3PE coating pipe marking was **NSSC 18" X9.5mmXDRL API 5L X60 PSL2 Test Pressure:13.6MPa Pipe No. xxxx Heat No.xxxxxxxx 2.5mm PE Coating as per DIN 30670 Made in China.** The result was acceptable.

- **Documents review**

All submitted documents were reviewed some documents were endorsed. The documents were acceptable and test datas indicated in the documents were met to requirement of relevant standards. Mainly document cover:

- 1) Mill test certificate of Epoxy Powder, adhesive and polyethylene
- 2) Mill test certificate of plate
- 3) Hydrostatic test report
- 4) NDT report
- 5) Mill test certificate of pipe

➤ **Surveillance with reference to ITP** (*Each activity elaborated in detail*) NA

➤ **Results of Inspection** (*incl. calibration status of equipment / instruments used for the inspection / testing*)

The inspection results were satisfied to relevant requirement as per technical specification and the calibration certificate for test equipment and instruments were reviewed with satisfactory.

Remark: For inspected pipes, BV inspector hard stamped BV logo on the body of inspected product.

➤ **Problems pending** (*Areas of Concern, punch list...*) NA

➤ **Photos at site**

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Visual check



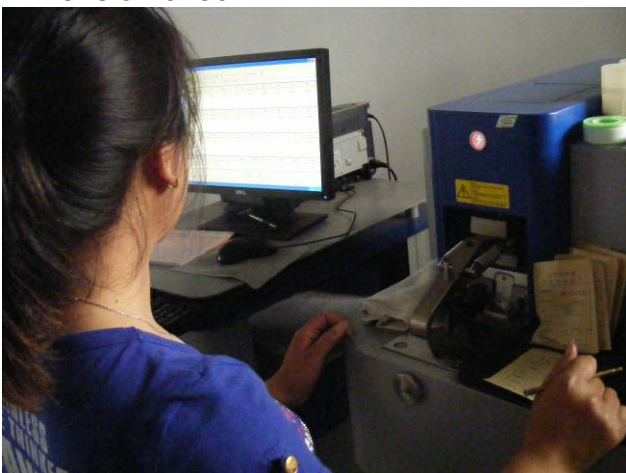
Dimension check



Dimension check



Dimension check



Witnessed chemical test



Witnessed tensile test

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Witnessed impact test



Total thickness of 3PE coating check



Total thickness of 3PE coating check



Witnessed peeling test



Witnessed holiday test



Witnessed holiday test



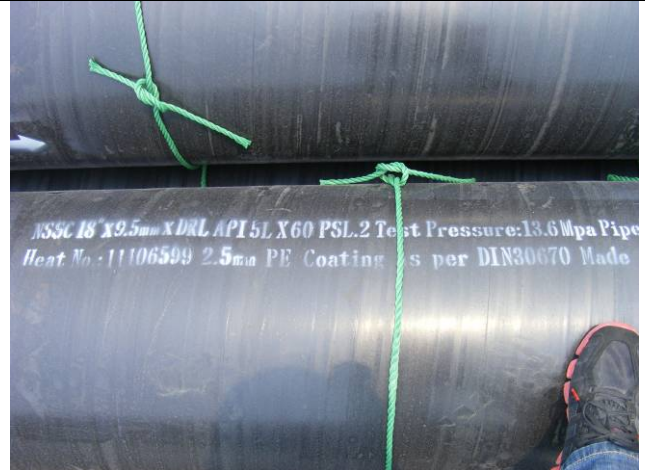
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Traced marking



Marking on body check



BV logo

ANNEXES Yes (Total number of pages:) No

Inspected by:

Name: Jason Yang

Signature: *Jason Yang*

Date of issue: Jun-20, 2012

Inspection centre: BUREAU VERITAS TIANJIN



Checked by:

Name:

Signature:...

Distribution: CLIENT MANUFACTURER