STRUCTURAL ENGINEERING DIVISION

Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Project Manager
State Grid
China Electric Power Equipment and Technology Co., Ltd
±660kV Matiari-Lahore HVDC Transmission Line (Lot-8 Balloki)

Reference # CED/TFL **33691** (Dr. Qasim Khan) Dated: 05-08-2019
Reference of the request letter # CET/HVDC/L8Balloki/S.J. Steel/UET-19-724Dated: 31-07-2019

Tension Test Report (Page -1/1)

Date of Test 21-08-2019
Gauge length 8 inches
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight	Diameter/ Size		Area (in^2)		Yield load	Breaking Load	Yield Stress (psi)		Ultimate Stress (psi)		Elongation	% Elongation	Remarks
	(lbs/ft)	Nominal (#)	Actual (inch)	Nominal	Actual	(kg)	(kg)	Nominal	Actual	Nominal	Actual	(inch)		
1	0.373	3	0.374	0.11	0.110	3100	4700	62200	62350	94200	94600	1.00	12.5	
2	0.360	3	0.367	0.11	0.106	3100	4600	62200	64620	92200	95900	1.00	12.5	
3	0.366	3	0.370	0.11	0.108	3200	4900	64200	65500	98200	100300	0.90	11.3	
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only three samples for tensile and three samples for bend test														
Bend Test														
#3 Bar Bend Test Through 180º is Satisfactory														
#3 Bar Bend Test Through 180º is Satisfactory														
#3 Bar Bend Test Through 180º is Satisfactory														

Witness by Rana Zahid (SDE NTDC), M Abbas (RE EO) & Ali Adnan (CET Lot 8)

I/C Testing Laboratoires
UET Lahore, Pakistan.

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To,
Resident Engineer
EGC (pvt) Ltd
Kuchlak Bypass Additional work under USAID for Kalat-Quette-Chaman Section N-25
(3M and IIL Karachi)

Reference # CED/TFL **33699, 701** (Dr. Qasim Khan) Dated: 06-08-2019
Reference of the request letter # KQC/Add/RE/268 Dated: 22-04-2019

Tension Test Report (Page – 1/2)

Date of Test 21-08-2019
Gauge length 2 inches
Description Gantries Steel Strip Tensile Test

Sr. No.	Designation	Size of Strip	X Section Area	Yield load	Breaking Load	Yield Stress	Ultimate Stress	Elongation	% Elongation	Remarks
	------	(mm)	(mm^2)	(kg)	(kg)	(MPa)	(MPa)	(in)		
1	**Gantries**	**29.90x3.00**	**89.70**	**4100**	**5000**	**448.39**	**546.82**	**0.45**	**22.50**	
2		**29.90x3.00**	**89.70**	**4000**	**4900**	**437.46**	**535.89**	**0.45**	**22.50**	
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-		-	-	-	-	-	-	-	-	
Only Two Samples for Tensile Test										
Bend Test										

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Kuchlak Bypass Additional work under USAID for Kalat-Quette-Chaman Section N-25
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Reference # CED/TFL **33699, 701** (Dr. Qasim Khan) Dated: 06-08-2019
Reference of the request letter # KQC/Add/RE/268 Dated: 22-04-2019

Tension Test Report (Page – 2/2)

Date of Test 21-08-2019
Gauge length 2 inches
Description Sign Board Strip Tensile Test

Sr. No.	Designation	Size of Strip	X Section Area	Yield load	Breaking Load	Yield Stress	Ultimate Stress	Elongation	% Elongation	Remarks
	------	(mm)	(mm^2)	(kg)	(kg)	(MPa)	(MPa)	(in)		
1	**Sign Board**	**15.10x3.00**	**45.30**	**8.29**	**10.25**	**183.00**	**226.27**	**0.50**	**25.00**	
2		**15.103.00**	**45.30**	**8.34**	**10.42**	**184.11**	**230.02**	**0.50**	**25.00**	
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-		-	-	-	-	-	-	-	-	
Only Two Samples for Tensile Test										
Bend Test										

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To,
Laboratory Manager
M/S CGGC Sukhi Kinari Project Management in Pakistan
874 MW Sukhi Kinari Power Project

Reference # CED/TFL **33716** (Dr. Ali Ahmed) Dated: 19-08-2019
Reference of the request letter # Nil Dated: 16-08-2019

Tension Test Report (Page – 1/3)

Date of Test 21-08-2019
Gauge length 640 mm
Description Steel Strand Tensile Test as per ASTM A-416-94a

Sr. No.	Nominal Diameter	Nominal Weight	Measured weight	Yield strength clause (6.3)		Breaking strength clause (6.2)		Young's Modulus of Elasticity	% Elongation	Remarks / Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)	E, GPa		
1	**15.24 (0.6")**	**1102.0**	**1127.0**	**24300**	**238.38**	**25100**	**246.23**	**199**	**<3.50 Not ok**	**YPW 115-SJ-19097**
2	**15.24 (0.6")**	**1102.0**	**1124.0**	**24500**	**240.35**	**27500**	**269.78**	**198**	**>3.50**	
-	-	-	-	-	-	-	-	-	-	
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-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
Only two samples for Test										

Note:
1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

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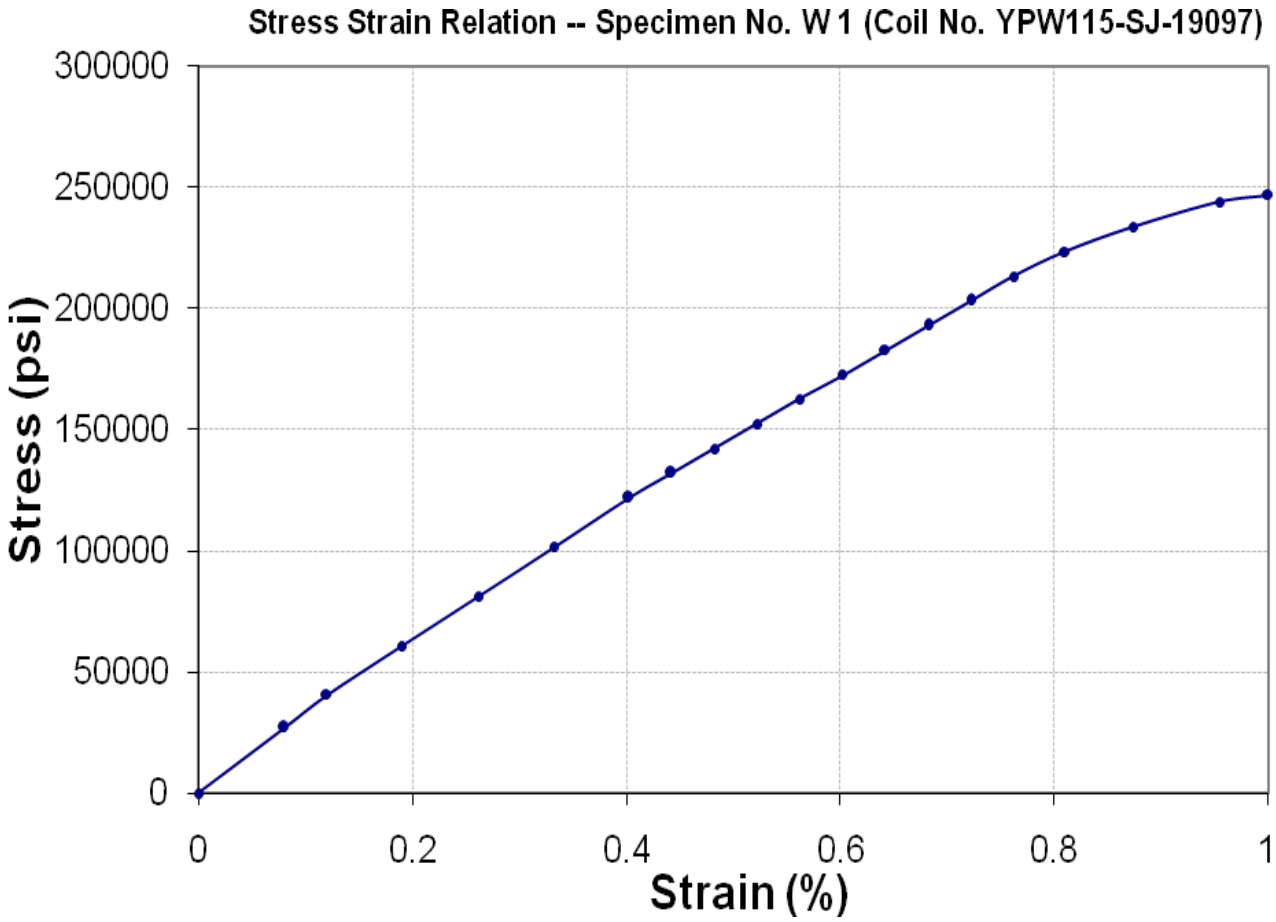
874 MW Sukhi Kinari Power Project

Reference # CED/TFL **33716** (Dr. Ali Ahmed) Dated: 19-08-2019
Reference of the request letter # Nil Dated: 16-08-2019

Graph (Page – 2/3)



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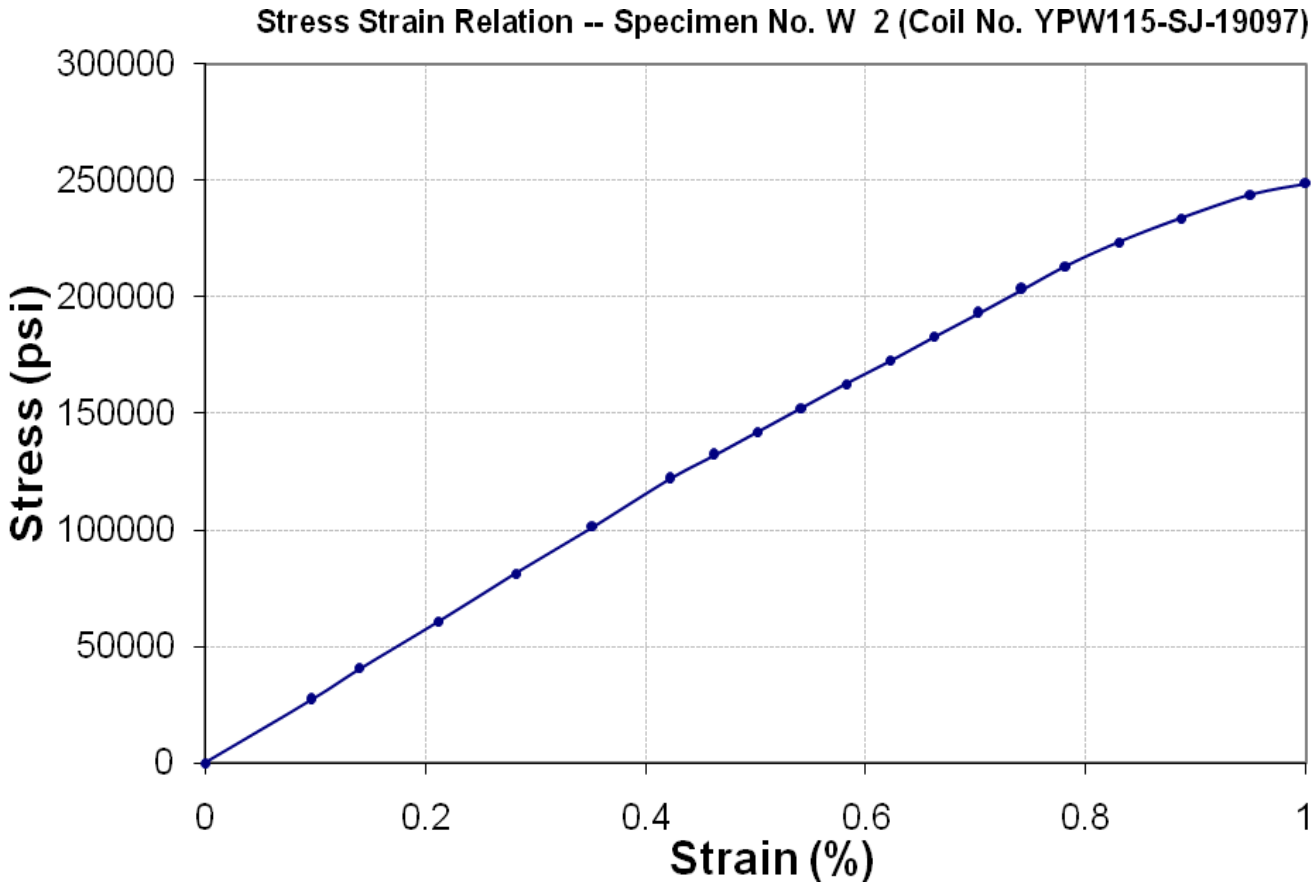
Graph (Page – 3/3)



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