DNV·GL

Elsewedy Transformers
Attn. Mr A. Zamzamy
Plot 27, 1st District, 5th Settlement
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Egypt

Tel: +20 1158008489
Our reference: 72131089

DNV GL – Energy
Reporting Office
KEMA Laboratories, Arnhem

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Date: 25 February 2016

Dear Mr Zamzamy,,

Please find enclosed the hard copy of the signed test protocols 20 MVA transformer.

Yours sincerely,

KEMA Nederland B.V.

Yvonne Kamphuis
KEMA Laboratories, Arnhem, the Netherlands

ELSEWEDY
TRANSFORMERS

M.O.M

In these days from 18 to 21/ 1 /2016 the following tests had been done on ONE transformers
20 / 13 MVA, 33/13.8 KV
S/N (024031501)

In the presence of:-

Mr. Richard Houtepen	**KEMA**
Mr. Mansour Al Kaaik	**SEC**
Mr. Abdullah Alghassab	
Mr . Abdullah Mesfer Al Mutairi	
Eng. Doaa Hegazy	**EL Sewedy Transformers**
Eng. Mohamed Khalil	
Eng. Mohamed Nasser	

The following tests had been carried out on transformer S/N (024031501)

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Richard Houtepen
Date: 22/1/2016
KEMA Laboratories

Routine test,

1. Measurement of winding resistance
2. Measurement of voltage ratio and check of phase displacement
3. Measurement of short-circuit impedance and load loss
4. Measurement of no-load loss and current
5. Dielectric routine tests
6. Tests on on-load tap-changers
7. Leak testing with pressure for liquid-immersed transformers (tightness test)
8. Check of the ratio and polarity of built-in current transformers.
9. Check of core and frame insulation for liquid immersed transformers with core or frame
10. Determination of capacitances windings-to-earth, and between windings.
11. Measurement of dissipation factor (tan δ) of the insulation system capacitances.
12. Measurement of d.c. insulation resistance each winding to earth and between windings.

Type tests

1. Temperature-rise type test (IEC 60076-2).
2. Dielectric type tests (IEC 60076-3).
3. Determination of sound level (IEC 60076-10) for each method of cooling for which aguaranteed sound level is specified.
4. Measurement of the power taken by the fan and liquid pump motors.
5. Measurement of no-load loss and current at 90 % and 110 % of rated voltage.

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Special tests

1. Dielectric special tests (IEC 60076-3).
2. Winding hot-spot temperature-rise measurements.

The Transformers Result was Satisfactory

SEC	**KEMA**	**Elsewedy Transformers**
Abdullah Alghussab		ELSEWEDY TRANSFORMERS
Abdullah Mesfer		
Mansour M. Al[illegible]		DNV·GL Richard Houtepen Date: 22/1/2016 KEMA Laboratories