1 # EC TYPE EXAMINATION CERTIFICATE

2 Equipment or protective system intended for use in potentially explosive atmospheres – Directive 94/9/EC – Annex III

3 EC Type Examination Certificate No.: **TRAC12ATEX0044X**

4 Equipment: **Oil Processing High Voltage Power Supply, OILPRC Series (See Description for Details of Models covered)**

5 Manufacturer: **NWL Transformers,**

6 Address: **312 Rising Sun Road, Bordentown, New Jersey 08505, United States of America**

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 TRaC Global Ltd, Notified Body number 0891 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment or protective system intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential report **TRA-011656-33-00A**.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in section 18 of the schedule to this certificate, has been assured by compliance with:

EN60079-0:2009 **EN60079-6:2007** **EN60079-7:2007**

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions of safe use specified in the schedule to this certificate.

11 This EC-Type Examination certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of this equipment or protective system shall include the following:

Ex e o IIB T4 Gb (Tamb -45°C to +50°C) or (Tamb -40°C to +50°C)

This certificate and its schedules may only be reproduced in its entirety and without change. This certificate is issued in accordance with the TRaC Ex Certification Scheme.

S P Winsor, Certification Officer

Issue date: 2012-10-22

Copy No.: 1e

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13 **SCHEDULE TO EC TYPE EXAMINATION CERTIFICATE**

14 **TRAC12ATEX0044X**

15 **General description of equipment or protective system included within the scope of this certificate**

HV Power Supplies, OILPRC Product Family, rated at 400/460/600/690Vac Input, 25/37/50/60/75/100/125/150 kVA, with a selectable output voltage (via tap switch) of 12,16.5, 20, 23, 25 kV. The output can be either AC or DC. All models are electrically identical, use the same oil type, and utilize three alternate tank sizes. These units use oil immersion 'o' to protect the reactor, transformer, and rectifier circuit (if unit has a DC output). The main electrical enclosure and fuse box utilizes increase safety 'e' for all connections and 'm e' for the R.Stahl fuse. The main difference between the models are the size of the transformer (and windings) and the size (and windings) of the reactor. The model OILPRC0037, rated at 37 KVA (largest KVA size unit in the small tank), model OILPRC0075, rated at 75 KVA (largest KVA size unit in the middle sized tank), the model OILPRC150, rated at 150 KVA (largest KVA size unit in the large tank), were tested as a representative of all models.
Optional Accessories include:

- Temperature Switch: United Electric Controls, Model E121-3BS.
- Pressure Switch: United Electric Controls, Model J120-171M201.

Model number definition:

OILPRC/XXXX/X/XXXX/X/XXXX/XXX/XXXX/XX/XX/XX/X-descriptive text

/XXXX/ (1st 4 numbers) = kVA Size
- 0025= 25kVA
- 0037= 37.5kVA
- 0050= 50kVA
- 0060= 60kVA
- 0075= 75kVA
- 0100= 100kVA
- 0125= 125kVA
- 0150= 150kVA

/X/ (next letter) = Input phase & frequency
- C=single phase 60 Hz
- G=single phase 50 Hz

/XXXX/ (next 4 numbers) = Input primary voltage
- 0400= 400V
- 0460= 460V
- 0600= 600V
- 0690= 690V

/X/ (next letter) = Output type
- C=Single Phase 60 Hz Ac
- G=Single Phase 50 Hz AC
- D= DC

/XXXX/ (next 4 numbers) = Output voltage (highest voltage tap is listed)
- 12X0= 12kV
- 16X0= 16.5kV
- 20X0= 20kV
- 23X0= 23kV
- 25X0= 25kV

/XXX/ (next 3 digits) =Tank material and finish
- 316= 316 Stainless steel, no paint,
- MEG= Steel with Megatran 50 three coat paint system
- STD= Steel with standard ASA61 enamel

/XXXX/ (next 3 numbers) = Output flange NPT size or Weld Neck Flange Size and Weight

- 1NPT=1”NPT Weld Flange
- 2NPT=2”NPT Weld Flange
- 3NPT=3”NPT Weld Flange
- 2150=2” 150lb Weld Neck Flange
- 4150=4” 150lb Weld Neck Flange
- 4300=4” 300lb Weld Neck Flange
- 6150=6” 150lb Weld Neck Flange
- 6300=6” 300lb Weld Neck Flange
- 8150=8” 150lb Weld Neck Flange
- 8300=8” 300lb Weld Neck Flange

/XX/ (next 2 letters) = External Pressure Switch options

- PS = Pressure Switch
- NA = No switch

/XX/ (next 2 letters) =External Temperature Switch options

- TS = Temperature Switch
- NA = No switch

/XX/ (next 2 letters) =Internal Level Switch options

- LS = Fluid Level Switch
- NA = No switch

/XX/ (next 2 letters) =Primary Winding Type

- AL = Aluminium
- CU = Copper

/X/ (last letter) = Oil type

- C= Cross Grade 206 mineral oil
- S= Dow Corning 561 Silicone fluid

A list of controlled Manufacturer’s Documents is given in Appendix A to this schedule.

16 **Test report No.:** **TRA-011656-33-00A**.

17 **“Special Conditions of Safe Use” for Ex Equipment, if any:**

1. When connecting the equipment to a source of supply and other connections, the installer shall ensure that the entry method into the equipment maintains a degree of protection of at least IP66.
2. All incoming cables shall be fitted with appropriately sized ring crimp connections when connecting to a source of supply.
3. The oil tank level gauges shall be inspected for any damage, aging, cracks, etc, and be verified to be operating properly at least annually.
4. The oil level in the oil tanks must always be within the minimum and maximum allowed fill levels.
5. Field wiring to L1/L2 must be rated for at least 101°C
6. Field wiring to all other input terminals must be rated for at least 83°C
7. Covers and lids shall be closed and secured by all fasteners whenever the equipment is energized.
8. If optional level switch is used, it must be connected through a suitably rated Intrinsic Safety Barrier. The level switch is a simple, purely resistive mechanical switch.
9. If optional Temperature or pressure switches are used, they shall only be used in accordance with their ATEX approvals ratings and must be installed in accordance with the stated conditions for use. (Refer to ATEX Certificate DEMKO09ATEX0815573X)

18 **Essential health and safety requirements**

Covered by application of the standards listed in section 9 of this certificate and the assessment conducted in the test report listed in section 16 of this certificate.

19 **Additional information**

"Routine tests", if any:

1. The manufacturer shall conduct overpressure testing in accordance with clause 5.1.1 of EN60079-6:2007, at a pressure of 0.310 bar gauge. The test shall be conducted for at least 12 hours and as result there shall be no leakage of air or protective liquid from the tank and there shall be no damage or permanent deformation of the enclosure.
2. The manufacturer shall conduct reduced pressure testing in accordance with clause 5.1.2 of EN60079-6:2007, at the following vacuums. The test shall be conducted for at least 24 hours and may be conducted with oil in the tank.
   25/37KVA Tank
   - Main Tank : -0.352 Bar (-5.1 psi)
   - Diode Tank: -0.476 Bar (-6.9 psi)

   50/60/75KVA Tank
   - Main Tank : -0.338 Bar (-4.9 psi)≤
   - Diode Tank: -0.407 Bar (-5.9 psi)

   100/125/150KVA Tank
   - Main Tank : -0.310 Bar (-4.5 psi)
   - Diode Tank: -0.310 Bar (-4.5 psi)
3. The manufacturer is required to conduct routine electric strength testing at a voltage of at least 2380Vac rms for 1 minute from primary circuits to ground and an induced voltage test at 1.5 times the input voltage at 400Hz for a period of 5 minute.

"Special conditions for manufacture", if any:

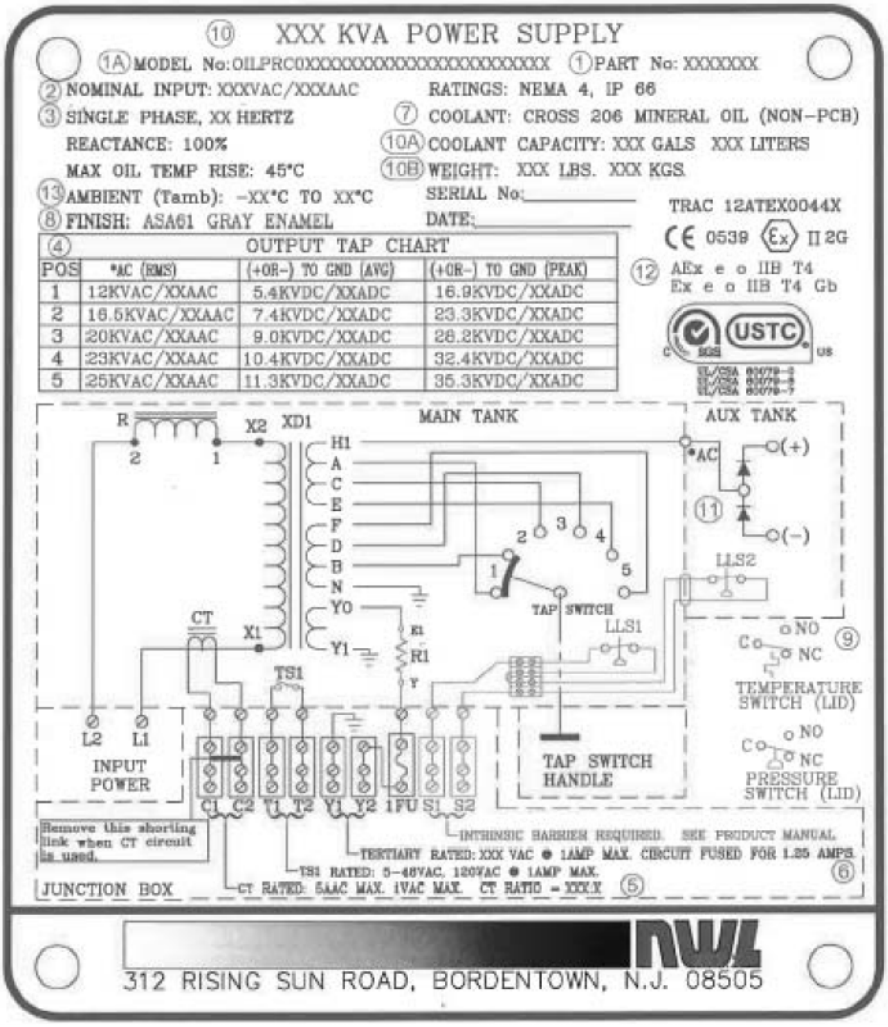
1. The manufacturer shall ensure that a normally sealed pressure relief device set to operate at 0.138 bar gauge is fitted to each unit.
2. Dow Corning, type 561 or Cross Oil Grade 206 must only be used.
3. The gasket in the Fuse enclosure must be verified to be either:
   - Weidmuller, Type K41 Enclosure: VMQ Seal Gasket
   - Weidmuller, Type POK4 Enclosure: HF Seal Gasket

Other information, if any:

None.

Photographs

Details of markings



Details of variations to this certificate

- None.

Notes to CE marking

In respect of CE Marking, TRaC Global Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

Notes to this certificate

TRaC certification reference: **TRA-011656-32-00.**

Throughout this certificate, the date format yyyy-mm-dd (year-month-day) is used.

APPENDIX A - LIST OF CONTROLLED MANUFACTURER'S DOCUMENTS

Title:	Drawing No.:	Rev. Level:	Date:
Oil Processing Product Line Design Guide (3 Sheets)	A122298	D	2012-08-22
Sales Catalog for Oil Processing 100% Reactance AC or DC Power Supplies 25-150KVA, 400-690 VAC (1 Sheet)	A135404	**	2012-01-26
Sales Catalog for Oil Processing 100% Reactance AC Power Supplies 25-150KVA, 400-690 VAC (1 Sheet)	A135407	**	2011-06-16
Assembly Drawing 25-150KVA, 400-690 VAC, DC output (4 Sheets)	D135642	**	2012-02-29
Assembly Drawing 25-150KVA, 400-690 VAC, AC output (4 Sheets)	D135643	**	2012-02-29
OILPRC Nameplate/Schematic Template and Procedure (1 Sheet)	B121679	D	2012-08-09
OILPRC Design Guide 30" X 30" Guide	C121688	B	2012-08-10
OILPRC Design Guide 35" X 35" Guide (1 Sheet)	C121689	B	2012-08-10
OILPRC Design Guide 35" X 35" Guide (1 Sheet)	C121690	B	2012-08-10
OILPRC Junction Box 400-690VAC Electrical Clearances (1 Sheet)	B126362	B	2012-08-21
Drain Valve Cover 316SS (1 Sheet)	B112580	B	2006-12-01
NWL Standard Enamel Paint System (1 Sheet)	A136783	**	2012-08-15
NWL Magatran 50 Premium Paint System (1 Sheet)	A136784	**	2012-08-15
Pressure Relief Label (1 Sheet)	A120985	**	2005-02-28
Max/Min Permissible Oil Level (1 sheet)	A128480	**	2009-01-22
Fuse Box Warning Nmplt & Part No. Nmplt (1 sheet)	A136649N	**	2012-08-01
Hex Head Bolt Shroud (1 Sheet)	AH92345	**	1992-09-11
OILPRC Transformer Construction Detail (1 sheet)	C122317	B	2012-08-13
Reactor Construction Detail (1 sheet)	C122318	A	2012-02-13
Standard Gasket Clamped Lid Applications (1 sheet)	AM60010	**	2003-10-22
Hold down Clamp (1 Sheet)	BH17001	**	2002-03-08
Drill Drawings – Half Wave Rectifier (1 Sheet)	BP23982	**	2002-10-03
Component layout – Half wave Rectifier for D30232 (1 sheet)	B100889	C	2012-01-16
Bill of Material – Half wave rectifier – D30232) (1 Sheet)	D30232-BOM	**	2012-08-22
Component layout – Half wave Rectifier for D30231 (1 sheet)	B44729	C	2012-01-16
Bill of material (Half wave rectifier – D30231) (1 sheet)	D30231-BOM	**	2012-08-22
Diode Board for P23981 (1 sheet)	CP23981	A	1999-08-25
Component Layout for D30230 Rectifier Board (1 sheet)	B100487	B	2004-12-22
Bill of material (Rectifier Board – D30230) (1 Sheet)	D30230-BOM	**	2012-04-20
PCB OILPRC Tertiary Resistor Board Component Layout (1 sheet)	B136687	**	2012-08-01
Artwork for P24259 (Tertiary resistor board) (1 sheet)	BP24259	**	2012-07-31

Title:	Drawing No.:	Rev. Level:	Date:
Bill of Material – Tertiary resistor board) (1 sheet)	D25259-BOM	**	2012-08-23
PCB OILPRC Thermal Switch Board Component Layout (1 sheet)	B136686	**	2012-08-01
Bill Of Material _ Thermal Switch PCB (1 Sheet)	D25258-BOM	**	2012-08-23
Artwork for P2425B (Temp switch) (1 sheet	BP24258	A	2012-07-18
Oil Processing 1 Amp Current transformers (1 sheet)	B111533	B	2012-02-20
Oil Processing 5 Amp Current transformer (1 sheet)	B114105	A	2012-02-20
Certification Warning Label (1 Sheet)	A103485	C	2001-05-16
Pressure Relief and Fill assembly (1 sheet)	A113053	**	2001-11-13
Bill of Material – Pressure Relief (1 Sheet)	113053-BOM	**	2012-08-23
Nameplate, Ratings Ref. J-Box & Fuse Box (1 Sheet)	A136914N	**	2012-09-10
Bellows 6”-150lb Flanges (1 Sheet)	H29042	**	2012-09-10
Wire Temperature Label (1 Sheet)	A120984	**	2005-02-28
Wire Temperature Label (1 Sheet	A136791	**	2012-08-15
Product Manual (48 Sheets)	A104271	L	N/A

** no information provided.