GUIDE SPECIFICATIONS FOR SECONDARY UNIT SUBSTATION TRANSFORMERS

NOTE: ***Italics denotes information to be supplied by purchaser regarding either:***

- ***Choice of alternates.***
- ***Addition of optional features.***
- ***Specific information.***

SCOPE

These specifications cover an ***(indoor) (outdoor)*** secondary unit substation transformer from the incoming line terminals to the outgoing terminals.

GENERAL ARRANGEMENT

The accompanying sketch No. ..... indicates orientation of equipment only, not construction details.

RATINGS

The ratings of the transformer will be:

Self-cooled rating ..... kVA.
Fan-cooled rating ..... kVA.
Frequency ..... 60 Hertz.
Number of phases—3.
( ) incoming ***(3) (4)***-wire circuit***(s)*** ..... kV.
( ) outgoing ***(3) (4)***-wire circuit***(s)*** ..... volts.

INCOMING LINE SECTION*(S)*

Interrupter Switch, Selector Switch and Duplex Switch

This section shall consist of a floor-mounted, formed welded metal enclosure close coupled to the transformer section and equipped with:

1—Load interrupter switch, 3-pole, 2-position (on-off) gang-operated load switch, type HPL-C rated 600 amperes, ... kV, interrupting capacity 600 amperes.

1—Selector switch 3-pole, 2-position, (line 1—line 2) interlocked and in series with air interrupter switch.

1—Duplex switch, 2- 3-pole, 2-position (on-off) gang operated load interrupter switches, key interlocked and located side by side.

3—Power fuses, current-limiting type CL-13, rated ..... kV, ... amperes continuous. To be located between the switch and the transformer. The fuse door to be interlocked with the switch handle to prevent opening while the switch is in the closed position.

3—Lightning arresters rated ..... kV.

..... size cable to enter from ***(above) (below)*** and terminate in ..... ***clamp-type lugs per phase or (1-3/C) (2-3/C) (3-1/C) (6-1/C) pothead(s). Pothead(s) to be provided with ..... fitting for cables with the following specifications: ..... kV size, ... insulation, ... O.D. over insulation, ... O.D. conductor, ... O.D. overall.***

Liquid *(Interrupter) (Disconnect)* Switch*(es)*

This section shall consist of non fused, oil-insulated, load interrupter switch, mounted on transformer tank. This switch to be 3-pole (2) (3)-position device rated ..... amperes continuous at ..... kV.

This section shall consist of non fused, askarel insulated, disconnecting switch, mounted on transformer tank. The switch shall be capable of breaking transformer magnetizing current. This switch to be 3-pole, (2) (3)-position device rated 400 amperes continuous at ..... kV.

..... size cable to from enter ***(above) (below)*** and terminate in ***(1-3/C) (2-3/C) (3-1/C) (6-1/C)*** pothead***(s)***. Pothead***(s)*** to be provided with ..... fitting for cables with the following specifications: ..... kV size, ... insulation, ... O.D. over insulation, ... O.D. conductor, ... O.D. overall.

Oil Fuse Cutouts

This section shall consist of 3-gang-operated oil fuse cutouts, mounted in an air-filled terminal chamber directly connected to the transformer tank. Cutouts are to be 2-position and rated ..... amperes continuous at ..... kv.

.....size cable to enter from ***(above) (below)*** and terminate in .....***clamp-type lugs per phase or (1-3/C) (2-3/C) (3-1/C) (6-1/C) pothead(s). Pothead(s) to be provided with ..... fitting for cables with the following specifications: ..... kV size, ... insulation, ... O.D. over insulation, ... O.D. conductor, ... O.D. overall.***

Air Terminal Chamber

This section shall consist of a full-height air terminal chamber directly connected to the high-voltage side of the transformer. It shall be rated ***(4.8) (13.8)*** kV.

..... size cable to enter from ***(above) (below)*** and terminate in ..... ***clamp-type lugs per phase or (1-3/C) (2-3/C) (3-1/C) (6-1/C) pothead(s). Pothead(s) to be provided with ..... fitting for cables with the following specifications: ..... kV size, ... insulation, ... O.D. over insulation, ... O.D. conductor, ... O.D. overall.***

SPECIFICATIONS (continued)

TRANSFORMER SECTION

Ventilated-Dry Type-*(AA) (AA/FA)*

Transformer shall be a ventilated-dry type, metal-enclosed indoor construction, 3-phase, 60 Hertz, ***(self-cooled) (fan-cooled)*** with a temperature rating not to exceed a 150° C rise above 30° C average ambient. Rated ..... kVA, with a delta primary of ..... kV and a secondary of ..... volts ***(Delta) (Wye).***

Provide four (4) approximately 2½% full capacity taps in the high-voltage winding, two above and two below normal, brought out through studs, complete with bolted flexible links for deenergized tap-changing operation, made accessible through a removable panel on the transformer enclosure.

Transformer base construction to be of the fabricated type and suitable for using rollers or skidding in any direction.

Transformer to be factory tested as prescribed by ANSI and NEMA Standards. All NEMA standard accessories are to be provided.

Transformers 750 kVA and larger shall have provision for future forced air cooling.

Necessary winding-temperature equipment for temperature indication.

Gas-Filled Sealed-Dry Type—AA

Transformer shall be sealed-dry type, C_2F_6, gas-filled, 3-phase, 60 Hertz, self-cooled, with a temperature rating not to exceed a 150° C rise above a 30° C average ambient.

Rated ..... kVA, with a delta primary of ..... kV and a secondary of ..... volts ***(Delta) (Wye).***

Provide four (4) approximately 2½% full capacity taps in the high-voltage winding, two above and two below normal, brought out to an externally-operated, deenergized tap changer. Tap changer cover to be capable of being bolted in any tap position.

Transformer base construction to be of the fabricated type and suitable for using rollers or skidding in any direction.

Transformer to be factory tested as prescribed by ANSI and NEMA Standards. All NEMA standard accessories are to be provided.

Necessary winding-temperature equipment for temperature indication.

Liquid-Immersed Types *(Oil) (Askarel)—(OA) (OA/FA)*

Transformer shall be ***(Oil) (Askarel)*** insulated, 3-phase, 60 Hertz, ***(self-cooled) (fan-cooled)*** with a temperature rating not to exceed a 65° C rise above 30° C average ambient.

Rated ..... kVA, with delta primary of ..... kV and a secondary of ..... volts ***(Delta) (Wye)*** Provide four (4) approximately 2½% full capacity taps in the high-voltage winding, two above and two below normal, brought out to an externally-operated, deenergized tap changer. Tap changer handle to be capable of being locked in any tap position.

Transformer base construction to be of the fabricated type and suitable for using rollers or skidding in any direction.

Transformer to be factory tested or prescribed by ANSI and NEMA Standards. All NEMA standard accessories are to be provided.

Transformers 750 kVA and larger shall have provision for future forced air cooling.

SECONDARY CONNECTION

The secondary side of the transformer shall be equipped with close-coupled molding for connection to secondary distribution equipment.

This section shall consist of a full height air terminal chamber directly connected to the low voltage side of the transformer. It shall be rated 1.2 kV class. ..... cables ..... size to enter from ***(above) (below)*** and terminate in ..... clamp-type lugs per phase.