AMERICAN SAMOA POWER AUTHORITY

SPECIFICATION FOR THREE-PHASE PAD MOUNTED TRANSFORMERS

Specification for three phase, self cooled, pad mounted transformer(s), 60 Hz, 65 Deg. Rise maximum, standard impedance.

1.0 SITE CONDITIONS

The American Samoa Power Authority is a tropical island based electric, water, solid waste and wastewater utility. There is a high amount of salt entrained in the air. The average rainfall in American Samoa is 200 inches per year.

2.0 GENERAL REQUIREMENTS

The transformers shall be capable of operating satisfactory in an ambient temperature range of 75-95 degrees Fahrenheit, relative humidity of 90% and a humid coastal environment. The altitude range shall be from sea level to 3000 feet above sea level.

The transformer design, construction and testing shall be in accordance with the latest accepted, published ANSI, IEEE AND NEMA standards such as: ANSI C57.12.00. C57.12.22, C57.12.28, C57.12.70, C57.12.90, and NEMA TR-1 and TR-P9-1977, and REA U-5.

3.0 VOLTAGE

The American Samoa Power Authority utilizes a 13200/7620 voltage multi-grounded system for its primary distribution feeders.

The primary voltage rating of the transformer shall be 13.2/7.62 KV.

4.0 BUSHINGS

Primary connection to be dead front, loop feed, 15 KV 200amp, externally clamped high voltage epoxy bushing wells and load break inserts. Insulation class 95 Kv BIL.

Low voltage connection to be tin plated 4 hole spade type insulated terminal to accept Copper or Aluminum NEMA spades, with external removable grounding strap on neutral. Insulation class 30Kv BIL.

5.0 TEMPERATURE

At rated voltage and KVA, the temperature rise of the windings of the transformer shall not exceed 65 deg. C, when measure by the resistance method. The hot spot temperature

rise shall not exceed 80 Deg. C, in accordance with the latest Revision of ANSI C57.12.90.

6.0 GENERAL CONSTRUCTION AND ARRANGEMENT

The transformer tank, cover, enclosure, cocling fins, and all assorted hardware shall be fabricated from type 304L stainless steel. Manufacturer shall identify by appropriate marking the type of stainless steel metal used and specify the thickness of the metal in inches or gauge size.

The handhole cover shall be tightly gasketed and securely clamped to the tank to prevent entrance of moisture.

Standard ANSI accessories shall be provided and fill plug and pressure relief device suitable for relieving excessive pressure is such develops within the tank.

In addition to regular looking provisions, access doors shall be secured by recessed captive stainless steel pentahead bolt.

7.0 CORE AND COILS

Core and coils shall be assembled properly with five-legged core/coil assembly and free of foreign materials and rust.

8.0 IMPEDANCE AND SHORT CIRCUIT CAPABILITY

The transformers shall be constructed to withstand mechanical and thermal stresses due to secondary short circuit in accordance with the latest revision of ANSI standard C57.12.00.

9.0 TAPS

Each transformer shall be supplied with an approved external tap changing mechanism for de-energized operation.

Each transformer shall be equipped with four (4) different tap settings in 2.5% increments, in addition to the neutral position.

TAPS	P-N Volts
A	7620
B	7420
C	7230
D	7040
E	6850

10.0 OIL

The transformer shall be filled with insulating oil. The insulating oil should be manufactured by either the acid or solvent refined process and comply with EPA regulation for non PCB oil. Each transformer shall be clearly marked with a "NON-PCB" sign.

11.0 FUSING

High Side fusing shall be by means of Bay-O-Net type, oil immersed, expulsion fuses accessible through primary compartment and backed up by isolation link. A drip shield shall be below the fuses.

Manufacturer shall stencil in yellow letters at least 1" tall, the following statement in a visible location above and or below the fuse. Words shall be stenciled in English and Samoan as follows:

"DE-ENERGISE TRANSFORMERS BEFORE OPERATING FUSE."

"TAPE TRANSFORMER AE LE'I FA'AOLAINA FUSE."

12.0 HIGH VOLTAGE SWITCHES

All transformers 300 KVA and over shall have high voltage load break sectionalizing switches. The above high voltage load break switches are to be contained inside the transformer tank and may be oil immersed.

The load break switches shall provide circuit connections as shown in Exhibit 1 (8.3, 13.2). Line 1 – on, off, Line 2 – on, off.

The operating handles of the high voltage load break switches for Line 1 and Line 2 shall be located in the high voltage section of the terminal and switching compartment and shall be suitable for hot stick operation. The position of the switches, whether open or closed, shall be clearly indicated.

The high voltage bad breaks switches shall meet the following requirements when completely assembled and installed in the padmounted transformer.

a. Voltage rating of loadbreak switches: 15,000 volts, 95 Kv BIL.
b. Load break Capability: 200 rms
   Amperes at 15,000 volts and 0.8 power factor, lagging
c. Momentary rating: 10,000 asymmetrical rms amperes
d. Make and latch rating: 5000rms
   Symmetrical amperes

e. There shall be no arcing time after the switch blades have traveled from the closed position to the fully open position.

13.0 FINISH

The transformer shall be painted with No. 70 gray paint per ANSI 2551. If special corrosion resistant paint or painting methods are available, describe their advantages and indicated price adder, if any.

14.0 TESTING

Each transformer shall be electrically tested in accordance with ANSI standard C-57.12.90.

The bidders shall submit with their bids the Guaranteed Average no load and full load losses for each transformer classification.

The successful bidder, after testing the transformers at the factory shall submit certified test reports within 2 weeks as to actual losses of each transformer. ASPA may select to send someone to witness the tests. ASPA will reject all transformers that do not comply with ASPA's tendering specification and quote from successful bidder.

15.0 EVALUATION OF BIDS

For each transformer, please indicate guaranteed average no load and full load losses in watts. Bids will be compared according to the following formula

Evaluated Cost = Bid Price + (N/L loss) $9.17 + (F/L loss) $4.59

Certified test reports for each unit will be required. If the average losses are higher or lower than quoted, the invoice will be adjusted accordingly.

If any exceptions are taken to this specification, each shall be clearly noted in the quote.

Design drawings for typical unit shall be provided for each KVA size. These drawings shall accompany the bid.

All transformers to be priced CIF PAGO PAGO.

16.0 DELIVERY

Bidders must clearly state in their bids:

Date the transformers will be ready for testing at factory.

Shipping date from a West Coast port, specifying port.