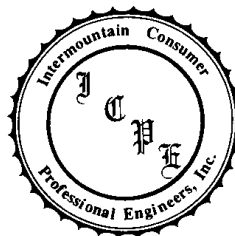


Bid Document and Specification

**Page Utility Enterprises
Greenehaven Circuit
144 kVA ONAN Rated
Pad Mounted Voltage Regulators**

Bid #249

April 2023



**Intermountain Consumer
Professional Engineers, Inc.
1145 East South Union Avenue
Midvale, Utah 84047
(801) 255-1111**

TABLE OF CONTENTS

<u>Section - Contents</u>	<u>Page</u>
Notice to Bidders	1
Proposal	2
1.0 General Requirements	
1.1 Scope	6
1.2 Correspondence.....	6
1.3 Bid Proposal.....	6
1.4 Bid Evaluation	6
1.5 Purchase Order.....	7
1.6 Delivery and Shipping	7
1.7 Invoicing	7
1.8 Title	7
1.9 Payment	8
1.10 Cancellation	8
1.11 Exceptions.....	8
1.12 Warranty	8
1.13 Standards.....	8
1.14 Inspection.....	8
1.15 Field Engineering and Testing	8
1.16 Drawings and Descriptions	9
2.0 Specifications - Specific	
2.1 Regulator Ratings.....	10
2.2 Accessories	10
2.3 Control Features	10
3.0 Specifications – General	
3.1 Tank	11
3.2 Grounding	12
3.3 Lifting and Anchoring.....	12
3.4 Bushings.....	12
3.5 Insulation System.....	12
3.6 Name Plate	13
3.7 Color	13
3.8 Regulator ByPass Switch	13
3.9 Shipping Data.....	13

NOTICE TO BIDDERS

NOTICE TO BIDDERS:

Sealed proposals will be received by Page Utility Enterprises, at its offices located at 640 Haul Road, Page, AZ 86040 until 3:00 p.m. on June 1, 2023 for the furnishing of three (3) Single Phase Pad Mounted Voltage Regulators for installation on Page Utility Enterprises' Grenehaven distribution circuit.

Owner shall enter only one contract for the purchase of regulators for the Project.

Instructions, specifications, and proposal blanks will be on file in the office of Intermountain Consumer Professional Engineers, Inc., ("Engineer") 1145 East South Union Avenue, Midvale, Utah 84047, where they may be consulted or secured for the purpose of bidding.

PROPOSAL

Name of Bidder: _____

Date: _____

To: Page Utility Enterprises
640 Haul Road
Page, Az. 86040

The undersigned, in compliance with your invitation for bids for pad mounted voltage regulators for the Grenehaven distribution circuit, having examined the specifications and related documents and being familiar with all of the conditions affecting the work, do hereby propose to furnish all materials and supplies as required in accordance with the contract documents as prepared by Intermountain Consumer Professional Engineers, Inc., within the time set forth and at the price stated below. This price is to cover all expenses incurred in providing the equipment required under the contract documents of which this proposal is a part.

I/We acknowledge receipt of the following addenda:

<u>Addenda No.</u>	<u>Date Received</u>
_____	_____
_____	_____

I/We agree to perform and complete all work shown on the drawings and/or described in the specifications for the sum of:

(BASE BID) _____ Dollars(\$ _____)
per 144 kVA pad mounted regulator (In case of discrepancy, written amount shall govern.)

These bids shall be good for 45 days after bid opening. Upon receipt of a contract from the Owner, the undersigned agrees to sign and return the contract within three (3) days.

BASE BID						
NO.	ITEM	UNIT	QTY	UNIT PRICE	UNIT SALES TAX	TOTAL PRICE
1	Pad Mounted Voltage Regulator	Ea.	3	_____	_____	_____
TOTAL OF BASE BID						\$ _____
Optional Base Bid Adders						
No.	Item	Unit	Qty	Unit Price	Unit Sale tax	Total Item Adder Price
ALT1	Regulator By-Pass Switch	Ea.	3	_____	_____	_____
ALT2	Enviro Temp FR-3 Fluid	Ea.	3	_____	_____	\$ _____
If accepted, Total Alternate price will be added to the Total Base Bid						

The bid will be awarded to the Bidder with the lowest evaluated bid price.

Value Analysis Factors (VAF) (To be completed by Owner/Engineer)

Technical Support..... -0 - 2%
Service Shop..... -0 - 2%
Service Engineer..... -0 - 1%
Product Quality and Performance..... -0 - 5%

Total VAF

The bid prices will be evaluated by the Value Analysis Factors to ensure that the Purchaser is getting the best product from a reputable manufacturer with adequate service capabilities. The bid will be awarded based on the evaluated price.

Total Evaluated Regulator Price (1 + VAF) \$ _____

Regulator Delivery Timeframe (from placement of order) _____ wks

Field Engineering Service:

Field Engineering Service (flat rate per diem):..... \$ _____

Drawings included with proposal (yes/no): _____

Substitutions:

The following substitutions of materials and/or equipment are proposed:

Manufacturer and Description	Add/Deduct
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____

Exceptions

All exceptions taken to items in this specification are to be listed below. The paragraph number and title should be stated, followed by an explanation of the exception to be taken. (Attach additional sheets if necessary.)

Dated at:

_____ this _____ day of _____ 20 ____ .

Bidder _____ (SEAL)

By _____

(Signature)

(Printed or Typed)

Title _____

Attest:

Complete Business Address of Bidder:

State of Incorporation:

Complete Address of Principal Offices:

Name, Address and Telephone Number of
Person to Contact Regarding this Proposal.
Include both Mail and Street Addresses:

Telephone:

Facsimile:

E-Mail:

TECHNICAL DATA TO BE FURNISHED WITH BID

VOLTAGE REGULATOR

The following technical information and data shall be submitted with the bid:

The voltage regulators shall be designed and manufactured for installation outdoors in a non-hazardous area over an ambient temperature range of -0°F to 110°F at an altitude of 4200 feet above sea level. The ratings apply at 4200 feet above sea level.

(1) Number of regulators required	3
(2) Number of phases.....	1
(3) Type of Regulator	
(4) System Voltage	21.6 kV
(5) Regulator Rated Voltage	
(6) Frequency.....	
(7) Class	
(8) Coolant.....	
(9) Temperature Rise	
(10)Regulator Rated BIL Minimum	
(11)Regulator Rated kVA ONAN @ 55° C rise	
(12)Regulator Rated kVA ONAN @ 65° C rise	
(13)Regulator Rated Current (+/- 10% Reg.).....	
(14)Regulator Rated Current (+/- 5% Reg.).....	
(15)Number of Steps.....	
(16)Loss Rating	
(17) No Load Loss	
(18)Total Loss	
(19) Voltage Regulator Control Type	
(20)Controller Manufacturer.....	
(21)Controller MOT Number	
(22)Warranty Period (Provide Terms)	
(23)Short Circuit Capabilities	

Note: The 144 kVA voltage regulators will be in service on a 21.6 kV Gnd-Y/12.47 kV distribution circuit. The regulators shall be operated at the 21.6 kV Gnd-Y /12.47 kV voltage. Proper control voltage transformers shall be installed to provide a proper voltage ratio for operation.

PART 1 - GENERAL REQUIREMENTS

1.1 SCOPE

- A. The purpose of this specification is to furnish the specific data and requirements pertaining to the purchase, design, inspection, shipment, service engineering, and the testing of all voltage regulators as specified herein to be purchased by Page Utility Enterprises. This equipment will be installed on the purchaser's Grenehaven 21.6kV Gnd-Y distribution circuit.

1.2 CORRESPONDENCE

- A. All proposals shall be addressed to:

Mr. Phil Faulk, Project Manager
Page Utility Enterprises
640 Haul Road
Page, AZ 86040

Telephone: (928) 645-2446

- B. Technical questions shall be addressed to:

Mr. Mike Velarde
ICPE
1145 East South Union Avenue
Midvale, UT 84047

Telephone: (801) 255-1111

E-Mail: mike.velarde@icpeinc.com

1.3 BID PROPOSAL

- A. Firm prices shall be quoted. The Bidder's proposal shall include sales taxes.
- B. **The Purchaser reserves the sole right without cause to accept or reject any or all bids, or any portion thereof.**
- C. All bids shall be marked "Bid #249 – Grenehaven 144 kVA Pad Mounted Voltage Regulators".
- D. The Purchaser reserves the right to waive minor irregularities or minor errors in any proposal if it appears to the Purchaser that such irregularities or errors were made inadvertently. Any such irregularities or errors so waived must be corrected in the Proposal in which they occur prior to the execution of any contract which may be awarded thereon.
- E. **The bidder shall supply three (3) copies of proposals (one [1] original, two [2] copies).**
- F. All Bidders will be notified of any changes in the specifications in addendum letters. Receipt of addendum letters must be acknowledged in the bid proposal.

1.4 BID EVALUATION

- A. The Purchaser will consider the prices and delivery dates as only two elements making up the total value of the material to be purchased. In order to properly evaluate other factors, we request the Supplier to provide answers to the following questions in his proposal:
 - 1. Where is the nearest factory authorized repair shop capable of repairing equipment of the size and type proposed?
 - 2. Where are the nearest factory trained Service Engineers located who can provide field service for the proposed equipment?
 - 3. How much (if any) of the Service Engineer's service is included in the quoted price for the equipment proposed?
 - 4. Please list any other information or project features that you feel should be considered in the evaluation of these proposals.

B. Other items which will be considered in the bid evaluation are:

5. The Bidder's past performance(s) in providing substation equipment and meeting quoted deliveries.
6. The Bidder's past ability and willingness to solve problems that have arisen in a satisfactory and complete manner.
7. The Bidder's deviations from the specifications.
8. Warranties. (Standard and Extended)
9. Manufacturer's cancellation policy.

1.5 PURCHASE ORDER

- A. It is anticipated that a purchase order will be issued to the successful Bidder(s) within thirty **(30) days** after the due date for the receipt of the proposals. However, all bids shall be valid for forty-five days after receipt of the proposal.

1.6 DELIVERY AND SHIPPING

- A. Firm delivery dates shall be of prime concern during the bid evaluation. Date of shipment shall be as promised by the Bidder, based upon prompt receipt of all necessary information. The date of shipment shall be defined as the date the bill of lading is signed by the carrier. The delivery FOB job site is desired. As soon as possible.
- B. Any change in the delivery date shall be reported immediately by telephone, followed by a written confirmation and explanation thereof. The delivery date shall be extended for the period of any reasonable delay due exclusively to causes beyond the control and without the fault of the Seller.
- C. Shipping shall be FOB job site. The title to the material and apparatus furnished hereunder shall pass to the Purchaser at the destination point.
- D. The apparatus shall be shipped in assembled units insofar as is consistent with good shipping practice. The apparatus shall be carefully packed for shipment. If items must be disassembled for shipment, they shall be "match-marked". All units and their containers shall be "piece-marked" and shall show the purchase order number. The Supplier shall indicate if the unit will be shipped completely assembled or will require on-site assembly. If on-site assembly is required, please indicate parts requiring assembly.
- E. On the same day that any shipment to the Purchaser is originated, a transmission, including the following, shall be forwarded to the Purchaser:
10. Packing List - Two (2) copies.
 11. Bill of Lading - Original and two (2) copies.
 12. A packing list shall also accompany each shipment.
- F. The purchaser shall be notified as to the whereabouts of the regulator 48 hours prior to their scheduled arrival at the destination point. The bidder shall pay any costs associated with unloading in the event that the regulators are not on site at this notified time.
- G. Failure to deliver prior to 1:00 p.m. on a Friday will not guarantee unloading until the following Monday. Layover costs will be paid by the Supplier.

1.7 INVOICING

- A. Invoices shall be submitted in triplicate form to:

Page Utility Enterprises
c/o Mr. Bryan Hill, General Manager
P.O. Box 1955
Page, AZ 86040

1.8 TITLE

- A. The title to the material and apparatus furnished hereunder shall be listed as follows:

1.9 PAYMENT

- A. Upon the shipment of any equipment hereunder, the Seller shall submit to the Purchaser a detailed invoice in duplicate of the equipment shipped. After delivery of the equipment the Purchaser shall make payment therefore to the Seller.

1.10 CANCELLATION

- A. In the event the Purchaser shall be required, or deems it advisable, to suspend or terminate the work being performed pursuant to this Specification, the Purchaser may do so at any time by written notice to the Seller. In such cases, the Seller would take whatever action with respect to work in process as would minimize its claim against the Purchaser. The Purchaser would pay the Seller a reasonable suspension or termination charge for all disbursements or expenses which the Seller has incurred or become obligated for prior to the date of notice of cancellation, less the reasonable resale value of the materials, equipment, and apparatus which shall have been obtained or ordered to become an integral part of the work, and excluding any allowance for anticipated profits on the unperformed portion of the work. Reimbursement portions of this section would not apply to cancellations caused by design changes by the Manufacturer not authorized by the Purchaser or caused by delivery of material beyond the quoted delivery date(s) not authorized by the Purchaser.

1.11 EXCEPTIONS

- A. Any exceptions to this Specification shall be clearly stated in the Bidder's proposal. The fact that there are exceptions will not necessarily preclude the selection of the Bidder's proposal. Any exceptions will be itemized in the evaluation of the proposal. If no exceptions to this Specification are taken by the Bidder, this shall also be clearly stated.
- B. Alternative offerings will be considered, but they must clearly be indicated as alternatives.

1.12 WARRANTY

- A. Manufacturer shall warrant to Purchaser that the apparatus or services to be furnished hereunder shall be of the highest quality and free from defects in material, workmanship, and title and will be of the kind designated in the pertinent purchase order. The Manufacturer's warranty shall be effective for a period of eighteen (18) months after the date of shipment to Purchaser or twelve (12) months after energization, whichever occurs first. Terms of Manufacturer's warranty shall be included in the bid proposal and will be a criterion for evaluation of the proposal.

1.13 STANDARDS

- A. Unless otherwise stated, the latest revisions of the standards of ANSI, NEMA, IEEE, ASTM, NEC, and UL, shall be met in design, testing, and manufacture of the equipment covered by this Specification. In the event a conflict occurs between these codes and the specifications which will follow, the more stringent requirements shall govern.

1.14 INSPECTION

- A. A representative of the Purchaser shall be allowed free access at all reasonable times to the Manufacturer's shops and those of his suppliers for inspection of the equipment, or any of its parts, and to obtain information on the progress of the work. Any work or material found to be defective, or which does not meet the requirements of this Specification may be rejected and shall be replaced by the Manufacturer at his own expense. Such an inspection, however, shall not relieve the Manufacturer of responsibility for the quality and correctness of the work.

1.15 FIELD ENGINEERING AND TESTING

- A. The voltage regulator(s) shall be assembled and tested at the factory for satisfactory alignment, operation, and electrical integrity.

- B. All regulators shall be tested in accordance with the latest ANSI Standards and as indicated in C57.15 latest Edition.
- C. Test reports shall be included with each manual as specified in Section 1.16B of this specification.
- D. Field tests at the time of installation shall be made at the expense of the Purchaser. If for any reason whatsoever the equipment furnished and installed hereunder, does not meet in any respect the warranties hereof and/or the performance specified by the Bidder in the proposal, and it becomes necessary for the Manufacturer to make alterations for the purpose of meeting those warranties and/or performances, additional tests required to show the effects of such alterations shall be performed at the expense of the Manufacturer.

1.16 DRAWINGS AND DESCRIPTIONS

- A. The following drawings and descriptions shall accompany the Bidder's proposal:
 - 1. General arrangement drawings showing the overall dimensions and relative location of all principal parts.
 - 2. General description of type of materials used for the principal parts.
 - 3. General description of the construction including drawings, photographs, or cuts which show the general construction, including operating mechanism.
 - 4. General description and diagrams showing the equipment mounting and handling facilities and clearance requirements.
 - 5. Control diagrams.
 - 6. Base drawings in sufficient detail to assist the Purchaser's Engineer in making preliminary foundation layout plans.
 - 7. Information on Regulator Control type and function description.
- B. Within four (4) weeks after award of the equipment, the Manufacturer shall furnish to Purchaser's Engineer:
 - 1. One (1) set of certified, reproducible drawings in AutoCAD 2020 format.
 - 2. Three (3) sets of Installation, Operations, and Maintenance Manuals.
 - 3. Three (3) sets of Equipment Specification Sheets and Parts Lists.
 - 4. Recommended spare parts list.
 - 5. Preventative maintenance procedures and schedule of procedures recommended.
- C. In addition, Manufacturer shall ship one (1) complete set of equipment drawings; Installation, Operations and Maintenance Manuals; and Specification Sheets and Parts Lists with each regulator. This material shall be enclosed in a weather-proof package securely attached to the unit and protected from loss or damage.
- D. The drawing list shall include, at the minimum, the following:
 - 1. Dimensioned Outline (Plan View, Elevations, Cabinet Interiors with device locations)
 - 2. Base Bolting
 - 3. Name Plate
 - 4. S Bushing
 - 5. L Bushing
 - 6. SL Bushing
 - 7. Accessory Schematic Diagram
 - 8. Control Cabinet Wiring Diagram
 - 9. Location of Bushings, Gauges, Nameplate, By-Pass Switches, etc..
 - 10. Manual on Control to be Provided.

PART 2 - SPECIFICATIONS – SPECIFIC

2.1 REGULATOR RATINGS

A. The voltage regulators shall be designed and manufactured for installation outdoors in a non-hazardous area over an ambient temperature range of 0°F to 110°F at an altitude of 4200 feet above sea level. The ratings as follows applied at 4200 feet above sea level.

- 1. Number of regulators required..... 3
- 2. Number of phases..... 1
- 3. Type of Regulator..... Distribution Circuit Pad Mounted Step
- 4. System Voltage..... 21.6 kV Gnd-Y/12.47 kV
- 5. Regulator Rated Voltage 14.4 kV
- 6. Frequency..... 60 Hz
- 7. Class (ONAN)
- 8. Coolant..... Oil (Base Bid) or FR3 (alternate adder)
- 9. Temperature Rise..... 55°/65°by resistance
- 10. Regulator Rated BIL MinimumInternal Connections 150 kV; Terminations 125 kV
- 11. Regulator Base 55/65 degree C Rated kVA 144 KVA ONAN
- 12. Regulator ONAF 55/65 degree C Rated kVA..... N/A
- 13. Regulator Max AMPS ONAN Rated (+/- 10% Reg.)..... 100 Amp
- 14. Regulator Max AMPS ONAF Rated (+/- 10% Reg.)... N/A
- 15. Number of Steps 32 @ 5/8% each

Note: **The 144 kVA voltage regulators will be in service on a 21.6 kV Gnd-Y/12.47kV distribution circuit. The regulators shall be operated at the 21.6 KV Gnd-Y /12.47kV voltage. Proper control voltage transformers shall be installed to provide a proper voltage ratio for operation.**

2.2 ACCESSORIES

A. The voltage regulators shall be equipped with at least the following features:

- 1. Stainless Steel Nameplate.
- 2. Lifting lugs capable of lifting the complete regulator.
- 3. A position indicator with drag hands and reset device.
- 4. Oil drain valve and sampling device.
- 5. Filtering connections.
- 6. Oil level gauge.
- 7. Automatic pressure relief devise.
- 8. Under oil shunt arrester.
- 9. Internal differential PT.
- 10. Internal motor power supply.
- 11. Provision for grounding Tank and Cabinet.
- 12. The operating motor capacitor shall be mounted external to the main regulator tank to allow for capacitor replacement without un tanking the regulator.
- 13. Control box with Controller

2.3 CONTROL FEATURES

A. The voltage regulators shall be equipped with a Schewitzer Engineering SEL 2431 Microprocessor based controller and with at least the following features:

- 1. SEL 2431 shall be typical of SEL MOT 24310111X1119XXX30XX (verify for retrofit kit)
- 2. Neutral position indication.
- 3. Neutral indicator light actuated only when the reversing switch is in the neutral position.
- 4. Configurable display points.
- 5. UBS flash drive port.

6. Seven configurable push buttons and LED's.
7. Drag hand reset.
8. Internal /external power switch.
9. Raise/lower push buttons
10. Adjustable bandwidth (1.0 - 6.0 volts \pm 0.5 volts).
11. Adjustable voltage level (105-135 volts \pm 1 volt).
12. Band edge indicating lights (high, low or balanced).
13. Adjustable line drop compensation (Resistance: 0-24 volts, \pm 1 volt reactance, coarse and fine; 0-24 volts, \pm 1 volt).
14. Voltage test terminals.
15. Operation Counter.
16. Adjustable time delay (10-150 seconds \pm 10 seconds).
17. Control switch for automatic, manual control.
18. Reverse power flow detector with indicating light.
19. Control power switch.
20. Internal - External power supply for de-energized regulator operation and testing at 120 volts. Switch should prevent energization of the high voltage winding from this source.
21. Adjustable regulating range to values from +/-5 percent to +/-10 percent to provide additional current carrying capacity.
22. Control cabinet heaters.
23. "First House" voltage protection adjustable from 105-120 volts \pm 1 volt on lower limit and 121-135 volts \pm 1 volt on upper limit.
24. Capability to display and provide the following information:
 - a. Power factor indicating leading or lagging with drag hand for leading and lagging maximum values.
 - b. Instantaneous current and drag hand for maximum values.
 - c. Instantaneous voltage and drag hand for lowest and highest voltage.
 - d. Demand metering simply read and extracted.
25. Both current and voltage harmonic metering to the eleventh harmonics.
26. Communications Port 1 – EIA-232
27. Communications Port 2 – Two 100BASE-LX Single Mode with LC style Connector.
28. The control shall be "SCADA Ready" and provide for digital communication via Fiber Optic interconnection for the following features:
 - a. Remote operation (Raise/Lower)
 - b. Remote integration and programming of operating parameters.
 - c. A security system to assure only authorized personnel can access and change operating characteristics of the regulator control.
 - d. Communications Protocol shall be [DNP 3.0.]
 - e. The connection type provided shall be [ST type fiber connectors.]
29. Voltage reduction for added capacity for peak periods.
30. Control shall be housed in a separate Control Box mounted within the Regulator Cabinet.
31. Weatherproof control panel cabinet, with self-locking door, capable of being padlocked.
32. The SEL 2431 controller shall be Position indicator with drag hands and reset device.
33. The SEL 2431 controller shall be connected to the regulator and fully functional.

PART 3 - SPECIFICATIONS – GENERAL

3.1 TANK

- A. The voltage regulator tanks shall be manufactured from steel plates with welded seams; for access, the tank shall have a bolted cover with nut guard.
- B. The Pad mounted regulator assembly shall include a compartmented security cabinet with high voltage connection contained in a separate compartment from gauges and control cabinet.
- C. Shall include stainless steel hardware and penta-head captive door bolts.

- D. The bushing designations (S, L, SL) shall be stamped or embossed on the voltage regulator cover adjacent to the bushing.
- E. Shall include an oil sight gauge shall be provided with placement at critical level. Gauge to be located within the security cabinet.
- F. Shall include a dial type liquid level gauge within the security cabinet.
- G. Shall include an automatic pressure relief valve with pull ring located within the security cabinet.
- H. Voltage regulators shall be furnished with an oil sampling valve and located in the security cabinet.
- I. Each voltage regulator shall be provided with etched nameplates located within the security cabinet.
- J. A position indicator gauge which is mounted above the oil level of the voltage regulator shall be included to indicate the changer position and resettable through the SEL 2431 controller. The position indicator shall be located within the security cabinet.

3.2 GROUNDING

- A. SL Bushing shall be grounded to the tank with a properly sized cooper ground strap.
- B. Tank compartments shall be equipped with stainless steel 2-hole ground pads.

3.3 LIFTING AND ANCHORING

- A. Lifting lugs shall be attached to the voltage regulator to facilitate lifting the complete unit.
- B. The voltage regulator mounting base shall be designed to permit anchoring to a concrete foundation. The Manufacturer shall indicate in his outline drawing the dimensions of the voltage regulator base in order that the Purchaser's Engineer may complete the foundation design in advance of shipment.

3.4 BUSHINGS

- A. All bushings shall be removable with or without untanking the voltage regulator. All bushings shall be so designed that there will be no undue stressing of any parts due to temperature changes.
- B. Bushings shall have indications of amp and BIL rating.
- C. All bushings shall be interchangeable.
- D. Bushings and inserts shall be rated for operation at an altitude of 4200 feet above sea level.
- E. All bushings shall meet the requirements of ANSI/IEEE 386 (latest edition).

3.5 INSULATION SYSTEM

- A. Oil shall be pure, unadulterated, mineral oil obtained by the fractional distillation of petroleum. Oil shall be prepared and refined especially for use in voltage regulators, having a minimum flash point of 145°C. It shall be free from moisture, acid alkali, and injurious sulfur compounds. The oil shall not form a deposit under normal operation temperatures. The minimum allowable dielectric strength of the oil shall be 30 kV when measured in accordance with American National Standard methods of Testing Electrical Insulating Oils, C59.2.
- B. All oils shall be non-PCB. The unit shall be clearly marked non-PCB.
- C. The Manufacturer shall supply Material Safety Data Sheets (MSDS) for all applicable products.
- D. The Manufacturer shall provide certified test results verifying that the voltage regulator oil is free from all polychlorinated biphenyl (PCB) fluids. The Manufacturer shall be responsible for providing certified test results verifying the oil is free of all polychlorinated biphenyl (PCB) fluids prior to filling voltage regulator with oil.
- E. An oil sampling and drain valve shall be provided.
- F. **As a bid alternate, the manufacturer shall provide a bid value to supply Enviro Temp FR-3 fluid for each regulator versus supplying mineral oil as specified above.**

3.6 NAME PLATE

- A. A durable stainless-steel nameplate shall be affixed to the voltage regulator by the Manufacturer.

Nameplate data shall include:

- a. Serial number.
- b. Number of phases.
- c. Regulator type.
- d. Configuration diagram.
- e. Rate voltage.
- f. Frequency.
- g. Rated BIL.
- h. Rated kVA.
- i. Rated current.
- j. Rated range of regulation.
- k. Total weight.
- l. Total gallons of oil required.

3.7 COLOR

- A. The voltage regulator Tank, and Cabinet shall be painted Munsell 7GY3.29/1.5.
- B. The control cabinet shall be ANSI No. 70, light grey.
- C. The Manufacturer shall furnish one gallon of “touch-up” paint for Tanks and Cabinet. The Manufacturer shall include Material Safety Data Sheets (MSDS) for the paint.

3.8 REGULATOR BYPASS SWITCH

- A. **As a bid alternate, the manufacturer shall provide a quote to supply a regulator bypass switch module in each of the regulators provided under this specification.**
- B. The regulator bypass module shall be equipped with:
1. Four (4) – 200-amp bushing inserts.
 2. Connection between By-Pass Module and Regulators; including elbows, cabling, and ground connection.
 3. Ground bar.
 4. Two (2) cable parking stands.
 5. A durable stainless steel metal nameplate, and including a switch diagram, shall be affixed to the bypass switch module.
 6. Bushings per 3.4 above.

3.9 SHIPPING DATA

The voltage regulators are to be shipped by truck to the project site.

END