



**INVITATION FOR BIDS**  
**OFFICE OF PROCUREMENT & CONTRACTS**

**1. INSTRUCTIONS FOR BIDDERS**

- a. Sealed bids will be received in the Office of Procurement & Contracts, Mississippi State University, for the purchase of the items listed herein.
- b. All bids must be received in the Office of Procurement & Contracts on or before the bid opening time and date listed herein. Delivery of bids must be during normal working hours, 8:00 a.m. to 5:00 p.m. CST, except on weekends and holidays when no delivery is possible.
- c. Bidders shall submit their bids either electronically or in a sealed envelope.
  - i. Sealed bids should include the bid number on the face of the envelope as well as the bidders' name and address. Bids should be mailed to: 245 Barr Avenue, 610 McArthur Hall, Mississippi State, MS 39762.
  - ii. At this time we only accept non-ITS bids electronically. For electronic submission of bids, go to: <https://portal.magic.ms.gov> and use the RFX number on the next page as your reference number.
- d. All questions regarding this bid should be directed to the Office of Procurement & Contracts at 662-325-2550.

**2. TERMS AND CONDITIONS**

- a. All bids should be bid "FOB Destination"
- b. Bidders must comply with all rules, regulations, and statutes relating to purchasing in the State of Mississippi, in addition to the requirements on this form. General Bid Terms and Conditions can be found here:  
[https://www.procurement.msstate.edu/procurement/bids/Bid General Terms May 2019 V2.pdf](https://www.procurement.msstate.edu/procurement/bids/Bid%20General%20Terms%20May%202019%20V2.pdf)
- c. Any contract resulting from this Invitation for Bid shall be in substantial compliance with Mississippi State University's Standard Contract Addendum:  
<https://www.procurement.msstate.edu/contracts/standardaddendum.pdf>

**Bid Number/RFX Number: 23-131/RFX#3160006296**

**Opening Date: December 19, 2023 at 2:00 p.m.**

**Description: 15kV Vacuum Circuit Breakers (Material Only)**

Vendor Name: \_\_\_\_\_

Vendor Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Days the Offer is Firm: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

See following pages for specifications and bid pricing form.

**Specifications & Materialman's Proposal  
For  
15 kV Vacuum Circuit Breakers  
(Material Only)  
For  
IHL 205-351 - New 13kV Distribution Bays  
at MSU Electrical Substation**



**November 21, 2023**

**Prepared for:**

Mississippi State University  
610 McArthur Hall  
Mississippi State, Mississippi 39762

**Prepared by:**

Atwell & Gent, P.A.  
309 University Drive  
Starkville, Mississippi 39759



11/21/23

Job No.: 601E3086

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**INSTRUCTION TO BIDDERS**

15 kV VACUUM CIRCUIT BREAKERS (MATERIAL ONLY)  
MISSISSIPPI STATE UNIVERSITY  
MISSISSIPPI STATE, MISSISSIPPI

Bids that are sent by mail shall be clearly marked "Bid Enclosed" or "Bid Envelope Enclosed" as appropriate. The sealed envelope containing the bid shall have the following information shown on the envelope:

BID ENCLOSED

ITEM: 15 kV VACUUM CIRCUIT BREAKERS (MATERIAL ONLY)  
PROJECT: IHL 205-351 - NEW 13KV DISTRIBUTION BAYS AT MSU ELECTRICAL SUBSTATION  
OWNER: MISSISSIPPI STATE UNIVERSITY  
MISSISSIPPI STATE, MISSISSIPPI  
BIDDER: BIDDER'S ADDRESS  
BID DUE: REFER TO ADVERTISEMENT FOR BIDS

Bids that are sent by parcel delivery service or hand-delivered should be addressed to:

Mr. Don Buffum, Director  
Office of Procurements & Contracts  
Mississippi State University  
Barr Avenue, 610 McArthur Hall  
Mississippi State, Mississippi 39762

Bids that are sent by mail should be addressed to:

Mr. Don Buffum, Director  
Office of Procurements & Contracts  
Mississippi State University  
P.O. Box 5307  
Mississippi State, Mississippi 39762

The Engineer for this project is:

Atwell & Gent, P.A.  
P.O. Box 2558  
Starkville, Mississippi 39760-2558  
Telephone (662) 324-5658

The Engineer will represent the Owner in all matters pertaining to this project, including but not limited to, answering technical questions of prospective bidders and recommendations of lowest and best bid, acceptance of shop drawings and similar documents, and approval of invoices prior to payment by the Owner.

Submit all questions about the specifications to the Engineer, in writing. Replies will be issued to all prospective Bidders of Record. Neither the Engineer nor the Owner will be responsible for oral clarifications.

Bidders shall complete all blank spaces on the Materialman's Proposal Form for each item of equipment being bid in accordance with these specifications and terms and conditions. Bidder should insert the unit price in the blank under the Unit Price heading and multiply this unit price by the number shown in the Number Required heading and enter the product of this multiplication in the blank under the heading Total Price for each bid item on the Materialman's Proposal Form. The bidder shall sum the Total Bid Price for each Bid Item and enter this sum in the Total Bid Price.

Bidder shall fully complete OWNER's Life Cycle Cost Evaluation. For Line Items #1 and #2, Bidder shall enter "Yes" or "No" in center column, as appropriate, for proposed equipment. A "Yes" response means that the Bidder's Proposal complies with the critical design feature as described. If a "No" response is given, OWNER will add the cost adjustment to the Bidder's proposal cost for evaluation purposes. For Line Item #3, Bidder shall enter the total number of circuit breaker maintenance services recommended or required by circuit breaker manufacturer for an assumed circuit breaker lifespan of 10,000 service operations/25 years.

Bidder shall acknowledge warranty requirements.

Bidder shall insert the delivery time in weeks after receipt of an order for each item of equipment bid in the blank provided. Bidder shall also indicate equipment being bid by the manufacturer's name and catalog number in the blanks provided on the Materialman's Proposal Form.

Bidder shall complete both copies of the Materialman's Proposal Forms bound in these Specifications and shall submit both copies to the OWNER at the time that the bids are due. Bidders taking exceptions to any part of the specifications, conditions, or payment terms specified herein shall show such exception on the Materialman's Proposal Form in the space provided. If exceptions are not shown on the Proposal Form, Bidder must supply equipment specified herein under the terms and conditions specified herein. Proposal forms shall remain bound in the Specifications. Proposals that are modified, excepted, or in any way changed from the proposal that the OWNER is requesting in this request for proposals may be rejected by the OWNER.

For evaluation of Bidder's proposal, cost adjustments for repair and maintenance costs for the life of the circuit breaker will be added to the circuit breaker bid price by OWNER for deviation from critical recommended or preferred design features and warranties as shown in OWNER's Life Cycle Cost Evaluation. **It is intent of the OWNER to award the bid for these SUBSTATION VACUUM CIRCUIT BREAKERS to the bidder whose proposal provides the OWNER the lowest overall life cycle cost for Bid Items No. 1 and No. 2 inclusive. Failure to fully respond to OWNER's Life Cycle Cost Evaluation may cause bid to be disregarded. Delivery promises beyond Owner's required ship date shall be cause for bid to be considered non-responsive and rejected.**

**PROPOSAL FORM**

15 kV VACUUM CIRCUIT BREAKERS (MATERIAL ONLY)  
 MISSISSIPPI STATE UNIVERSITY  
 MISSISSIPPI STATE, MISSISSIPPI

To: Mr. Don Buffum, Director  
 Office of Procurements & Contracts  
 Mississippi State University  
 Barr Avenue, 610 McArthur Hall  
 Mississippi State, Mississippi 39762

The undersigned (hereinafter called the MATERIALMAN) acknowledges by his signature that he has received and examined the documents entitled "Specifications and Materialman's Proposal for **15kV VACUUM CIRCUIT BREAKERS (MATERIAL ONLY)**" for Mississippi State University (hereinafter called the OWNER), dated November 21, 2023, and has included the provisions of the Specifications in his Proposal. The MATERIALMAN further acknowledges that he has received the following addenda:

Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_

The Materialman hereby proposes to sell and deliver to the OWNER, upon the terms and conditions herein stated, the equipment specified in the attached specification for the following sums shown below:

Item No.	Description	Unit Price(\$)	Quantity Required	Unit	Total Bid Price(\$)
1	15 kV Substation Vacuum Circuit Breaker, 1200A		2	EA	
2	Spare Parts		1	LS	
<b>Total Bid Price, Bid Items No. 1, and No. 2 inclusive</b>					

A. The vacuum circuit breaker shall be provided with a five (5) year warranty. The Materialman shall mark the following box to acknowledge that a five (5) year warranty is provided.

Vacuum Circuit Breaker bid includes five (5) year warranty.

B. Substation Vacuum Circuit Breaker Data Table: For evaluation of Bidder's proposal, cost adjustments for repair and maintenance costs for the life of the circuit breaker will be added to the circuit breaker bid price by OWNER for deviation from preferred design features shown in OWNER's Life Cycle Cost Evaluation table below. Bidder shall fully complete OWNER's Life Cycle Cost Evaluation. For Line Items #1 and #2, Bidder shall enter "Yes" or "No" in center column, as appropriate, for proposed equipment. A "Yes" response means that the Bidder's Proposal complies with the critical design feature as described. If a "No" response is given, OWNER will add the cost adjustment to the Bidder's proposal cost for evaluation purposes. For

Line Item #3, Bidder shall enter the total number of circuit breaker maintenance services recommended or required by circuit breaker manufacturer for an assumed circuit breaker lifespan of 10,000 service operations/25 years.

**LIFE CYCLE COST EVALUATION**

Item No.	Evaluated Critical Design Feature	Bidder's Proposal Complies/Bidder's Response	OWNER's Evaluated Cost Adjustment
1	Typical spare parts are available to be shipped from a storeroom within the US within 24 hours of notification by OWNER		+\$3,500.00
2	Warranty period provided is less than five (5) years.		+\$5,000.00
3	Number of circuit breaker maintenance services recommended or required by circuit breaker manufacturer for an assumed circuit breaker lifespan of 10,000 service operations/25 years (e.g., routine maintenance required every 2,000 operations)		+\$3,500.00 per routine maintenance service required

C. The prices set forth herein do not include any sums which are or which may be payable by the MATERIALMAN on account of taxes imposed by any taxing authority upon the sale, purchase, or use of the equipment. If any such tax is applicable to the sale, purchase, or use of the equipment, the amount thereof shall be added to the purchase price and paid by the OWNER.

D. The times of delivery shall be as follows:

BID ITEMS NO. 1 & NO. 2: \_\_\_\_\_

E. The items included in each of the above bid prices are as follows:

BID ITEM NO. 1

MANUFACTURER \_\_\_\_\_

CATALOG NO. \_\_\_\_\_

F. Title of the equipment shall pass to the Owner upon:

1. Delivery to location specified (FOB Destination).
2. Satisfactory inspection for in-transit damage.
3. Acceptance by the Owner.
4. Payment by Owner.

G. The MATERIALMAN shall include engineering data with his proposal as specified and as required to evaluate bid.

H. Bidder hereby certifies that he is:

( ) Manufacturer

( ) Manufacturer's Authorized Mississippi Representative

( ) Manufacturer's Authorized Mississippi Utility Distributor

I. Exceptions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

J. It is understood by the undersigned that the OWNER retains the privilege of accepting or rejecting all or any part of this proposal and to waive any informalities or technicalities therein. Counter-proposals or qualified bids shall be subject to rejection at the discretion of the OWNER.

K. It is also understood by the undersigned that the OWNER reserves the right to conduct investigations to evaluate the proposals received and to award the bid for this equipment to the lowest Bidder, who in the OWNER's evaluation will provide the equipment which will be in the best interest of the OWNER.

**MATERIALMAN**

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

COMPANY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_  
\_\_\_\_\_

TELEPHONE NO.: \_\_\_\_\_

DATE SIGNED: \_\_\_\_\_

## SPECIFICATIONS FOR 15 kV VACUUM CIRCUIT BREAKERS

### SECTION 1 GENERAL

#### 1.1 SCOPE

- A. This specification describes the requirements for a 1200 ampere, 15 kV, outdoor substation vacuum circuit breaker(s).
- B. The circuit breaker(s) will be used at the Mississippi State University 69/13 kV Substation.

#### 1.2 STANDARDS

- A. The circuit breaker(s) shall be designed, manufactured and tested in accordance with the latest revisions of applicable ANSI, IEEE, and NEMA standards during time of testing the prototype.

#### 1.3 ACCEPTABLE MANUFACTURERS

- A. Mitsubishi "15DV25-12"; Siemens "SDV"; Meyers Power Products "FVR".
- B. Substitutions: As Accepted.

#### 1.4 APPROVAL SUBMITTAL

- A. Electronic Submittals: All submittals shall be made electronically via email. Submittals shall be sent to:

Jeffrey Atwell, P.E.  
Atwell & Gent, P.A.  
Electrical & Consulting Engineers  
309 University Drive  
Starkville, MS 39759  
Email: [jatwell@atwellandgent.com](mailto:jatwell@atwellandgent.com)  
Phone: (662)324-5658

- B. Shop Drawings: Indicate bill of materials, outline dimensions, electrical characteristics and connection requirements, schematic and connection diagrams, connection and support points, weight, specified ratings and materials of all equipment, including bushings, connectors and other apparatus that would affect the installation of the circuit breaker.
- C. Structural Loading: Provide maximum foundation reactions resulting from equipment operation, NESC loading, and seismic loading.
- D. Product Data: Submit electrical characteristics and connection requirements, standard model design tests, and options.
- E. Test Reports: Indicate procedures and results for specified factory and field-testing and inspection.

## 1.5 SHIPPING SUBMITTAL

### A. Electronic Submittals:

1. All submittals shall be made electronically via email. Submittals shall be sent to:  
Jeffrey Atwell, P.E.  
Atwell & Gent, P.A.  
Electrical & Consulting Engineers  
309 University Drive  
Starkville, MS 39759  
Email: [jatwell@atwellandgent.com](mailto:jatwell@atwellandgent.com)  
Phone: (662)324-5658
2. Project Record Documents: Submit copy of manufacturer's certified shop drawings, product data and test results. All drawings submitted shall be in both AutoCAD (.dwg) and Adobe Acrobat (.pdf) formats. All product data and test results submitted shall be in Adobe Acrobat (.pdf) format.
3. Operation and Maintenance Instructions: Submit operating instructions for manually and electrically opening and closing circuit breakers. Include maintenance instructions for circuit breaker removal, replacement, testing and adjustment, and lubrication. All O&M Instructions submitted shall be in Adobe Acrobat (.pdf) format.

### B. Shipping Copy Submittals:

1. Send one (1) bound and indexed copy of Project Record Documents and Operation & Maintenance Instructions shipped with each circuit breaker furnished.

## 1.6 DELIVERY DATES AND RESTRICTIONS

- A. OWNER requires that vacuum circuit breakers ship during April 2025. In the event the Manufacturer completes production of these vacuum circuit breakers prior to April 2025, Manufacturer may ship vacuum circuit breakers early.

## 1.7 WARRANTY

- A. Manufacturer shall provide warranty information at the time of bid opening. Proposer shall provide a minimum warranty of five (5) years on the complete circuit breaker, including interrupters, bushings, bushing current transformers, circuit breaker elements, housing, etc.

## SECTION 2 PRODUCTS

### 2.1 GENERAL REQUIREMENTS

- A. The circuit breaker (s) shall be an outdoor, free standing, frame mounted, three-pole (three-phase), air insulated (oil-less) vacuum circuit breaker, designed for mounting on an outdoor concrete pad foundation.
- B. The circuit breaker(s) shall be complete from the incoming bushing studs to the outgoing bushing studs including bushing connectors.

- C. The circuit breakers will be exposed to the following conditions:
  - 1. Maximum Ambient Temperature: 50 degrees C.
  - 2. Minimum Ambient Temperature: -30 degrees C.
  - 3. Maximum Wind Velocity: 100 MPH.
  - 4. Seismic Zone: ANSI Zone 2.
  - 5. Elevation: Not to exceed 3,300 feet above mean sea level.
- D. The circuit breaker(s) will be installed on an effectively grounded neutral system.
- E. The circuit breaker(s) shall utilize motor-driven stored energy spring-spring actuator.
- F. The circuit breakers shall utilize vacuum bottle type interrupters.

## 2.2 RATINGS AND ELECTRICAL CHARACTERISTICS

- A. Maximum Voltage: 15.5 kV.
- B. Phase: Three-phase with three-phase operation.
- C. Frequency: 60 Hertz.
- D. Continuous Current: 1,200 amperes minimum, rms.
- E. Dielectric Strength: 50 kV rms, low frequency withstand minimum, dry; 115 kV rms, full wave withstand minimum.
- F. Interrupting Time: 3 cycles, maximum.
- G. Short-Circuit Rating: 25 kA rms, symmetrical, minimum, at rated maximum voltage.
- H. Control Voltages:
  - 1. Control voltage: 125-volt DC from external power supply; furnish terminals.
  - 2. Spring Charging Motor: 240 VAC from external power supply; furnish terminals.
  - 3. Close and Trip Coil: 125 VDC.

## 2.3 BUSHINGS

- A. Porcelain, manufactured by the wet process. Polymer bushings are not acceptable.
- B. Glazing: Free of imperfections.
- C. Color: ANSI # 70, Light Gray.
- D. Minimum Rating: 1200 amperes, 15.5 kV, 125 kV BIL.
- E. Creepage Distance: 20 inches minimum.

- F. Bushing terminals: Threaded stud type, with flat tinned NEMA 4" four-hole pad connector.
- G. Bushings shall be designed to allow space for mounting two (2) current transformers per bushing.

## 2.4 BUSHING CURRENT TRANSFORMERS

- A. Ratings:
  - 1. Type: 1200/5 amp (1-3-5 bushings) and 2000/5 (2-4-6 bushings), multi-ratio.
  - 2. Accuracy Class: C400.
  - 3. Number and Location: One current transformer on each circuit breaker bushing (six total).
  - 4. 2000/5 ampere current transformers on bushings 2, 4 and 6 shall be used for OWNER's external differential relaying scheme.
  - 5. 1200/5 current transformers on bushings 1, 3 and 5 shall be used for OWNER's external overcurrent relaying scheme.
  - 6. Short time mechanical and thermal rating shall conform to the breaker interrupting rating.
  - 7. Dielectric withstand of the circuit breaker shall not be reduced when current transformers are mounted on the circuit breaker bushings.
- B. Maintenance: All current transformers shall be removable without removing the bushings.
- C. Current Transformer Leads:
  - 1. Shall be #12 AWG stranded copper minimum, Type SIS or MTW with gray insulation.
  - 2. Overcurrent relaying current transformer leads shall be continuous from current transformers to 6-position short circuiting-type terminal blocks and from terminal blocks to terminal strips for OWNER's external connections.
  - 3. Differential relaying current transformer leads shall be continuous from current transformers to 6-position short circuiting-type terminal blocks and from terminal blocks to terminal strips for OWNER's external connections.
  - 4. Shall be marked with permanent sleeve markers to indicate ratio and polarity.
  - 5. Shall be terminated with non-insulated high-indent ring terminal connectors.
  - 6. Shall be terminated on 6-position short circuiting-type terminal blocks in control cabinet.
- D. Terminal Blocks: Provide 6-position short circuit terminal blocks with shorting screws and common shorting bar for each individual current transformer connections.
- E. Nameplates: Provide bushing current transformer nameplates permanently attached on the inside of the control cabinet.

## 2.5 HOUSING

- A. The enclosure shall be NEMA 3R weatherproof and designed in a modular construction isolating line potential components from secondary control devices.
- B. The enclosure shall be provided with forklift brackets and/or lifting eyes for lifting the entire unit during loading and unloading.
- C. The breaker shall be shipped completely assembled. Breakers shall not be shipped with legs unattached.
- D. The high voltage compartment shall house the vacuum interrupter assemblies supported on standoff insulators. The low voltage compartment shall house the magnetic actuator and associated controls, relays, control devices, terminal blocks for external connection, etc.
- E. NEMA 2-hole flat grounding pads shall be welded on each side of the enclosure for external ground connections. An electrical conducting path from the roof to the grounding pads is mandatory.
- F. The breaker shall be supplied with an adjustable substation mounting frame(s) to allow positioning of the bottom of the high voltage bushings a minimum of 8' - 6" above the breaker foundation and live parts a minimum of 9' - 0" above the breaker foundation.
- G. Leg assemblies shall be provided with a base channel for mounting circuit breaker on concrete pad foundation. Leg assemblies and base channel shall be galvanized.
- H. Outer doors shall have pad lockable handles for preventing access to all controls in the enclosure. Provisions for holding all doors in the open position shall also be provided.
- I. The low voltage cabinet bottom shall have minimum 6" x 12" removable cover for entrance of user's control conduit.
- J. Finish Color: ANSI #70, light gray finish.

## 2.6 CIRCUIT BREAKER ELEMENT CONSTRUCTION

- A. Requirements:
  - 1. Circuit breaker element shall be operated by motor-driven stored energy spring-spring actuator.
  - 2. Circuit breaker element charge, close and trip circuits shall be electrically separated, and control voltage for each circuit shall be independently selectable from the full range of ANSI preferred control voltages.
  - 3. **Provide trip coil monitoring, SEL-2652 or manufacturer's equal.**
  - 4. Manual provisions shall be provided for tripping and closing the circuit breaker.
- B. Actuator Mechanism
  - 1. Mechanism shall be non-pumping, mechanically and electrically trip free.

C. Vacuum Interrupters

1. Shall be hermetically sealed in high vacuum, protecting contacts from moisture and dirt.
2. Shall provide a primary contact erosion indicator for visual inspection to determine contact wear.

D. Features:

1. Four- or five-digit, non-resettable operations counter whose registration increases with each close operation. Counter shall be clearly visible from outside the breaker.
2. Position indicator to indicate the breaker position (open or closed). Indicator shall be clearly visible from outside the breaker.
3. "CLOSE" and "OPEN" push buttons for operating the breaker.
4. An emergency manual trip, ANSI Device Number 69, shall be provided and shall be readily accessible on the exterior of the breaker.
5. Sixteen (16) auxiliary contacts, eight (8) normally open "a" contacts and eight (8) normally closed "b" contacts, provided for OWNER's external use.

2.7 PROTECTION, INDICATION & CONTROL

A. Arrangement:

1. All terminal blocks shall be mounted within the weatherproof low voltage compartment.
2. A hinged panel shall be provided behind a weatherproof door for mounting the protective package. This panel, when swung open, shall provide easy access to terminal blocks. Stops shall be provided to hold these panels in the open position.

B. Relaying: None furnished in this Request for Bids. All protective relaying will be located in OWNER's relay and control house. Protective relaying furnished by OWNER is shown below and is provided for circuit breaker manufacturer's reference only:

C. Indicator Lamps: Provide red and green LED type position indicating lights.

D. Block Close Interlock: Provide close circuit wiring arrangement that allows external blocking of circuit breaker close from Owner's external 86 lockout relay to prevent closing of circuit breaker when Owner's external 86 lockout relay is tripped.

E. Control and Relay Wiring:

1. Shall be #14 AWG stranded copper minimum Type SIS or MTW with gray insulation.
2. Shall be continuous from device to device or device to terminal block.
3. Shall be marked with permanent sleeve markers for identification.
4. Shall be terminated with non-insulated high-indent ring terminal connectors.
5. Equipment control and power wiring shall be wired to terminal blocks for external connection by OWNER.

F. Terminal Blocks:

1. Rating: 600 volts, 30 amperes minimum.
2. Provide a minimum of 30 spare terminal positions for OWNER's use.
3. Shall be labeled for identification.

G. Identification: All control switches, relays, test blocks, test switches, indicating lamps, etc. shall be permanently labeled with suitable materials as accepted by OWNER.

2.8 ACCESSORIES

A. Space Heater: Provide heater to remove humidity. Heater shall be thermostatically controlled and located in the low voltage compartment. The heater control circuit shall be provided with low voltage circuit breakers or fuse and knife blade for disconnecting external low voltage supply circuit. Heater voltage shall be 120 volt AC, single phase, from external power supply; furnish terminals.

B. Light: Provide light in the low voltage compartment with hand and/or door activated switch. The light control circuit shall be provided with low voltage circuit breakers or fuse and knife blade for disconnecting external low voltage supply circuit.

C. Receptacle: Provide a 120 VAC GFI duplex receptacle in low voltage compartment. The receptacle control circuit shall be provided with low voltage circuit breakers or fuse and knife blade for disconnecting external low voltage supply circuit.

D. Wildlife Protection: Circuit breakers shall be equipped with wildlife protection cover for high voltage bushing terminals. The protection cover shall be properly sized for 4-hole terminal pad connector and 500 kCMIL copper conductor leaving top of circuit breaker terminal enclosed in 1" line hose.

2.9 SOURCE QUALITY CONTROL

A. Test in accordance with manufacture's standard production tests and applicable IEEE requirements.

SECTION 3 OTHER CONSIDERATIONS

3.1 Bidders for these items must be a (a) Manufacturer, (b) Manufacturer's Authorized Mississippi Manufacturer's Representative, or (c) Manufacturer's Authorized Mississippi Utility Distributor.

3.2 The MATERIALMAN shall include engineering data with his proposal as specified and as required to evaluate bid.

3.3 The total prices shall be firm if accepted by the OWNER within thirty (30) days and shall include the cost of delivery to the Mississippi State University 69/13 kV Substation; Oktibbeha County; Mississippi State, Mississippi. This price shall also include the cost of the Manufacturer's standard one-year warranty.

- 3.4 The MATERIALMAN shall acknowledge in writing to the Engineer that the Owner's Purchase Order or acceptance has been received. The acknowledgement shall include the date that the Purchase Order or acceptance is received and the date that equipment delivery is expected.
- 3.5 As soon as practicable after receipt of Owner's Purchase Order or acceptance of MATERIALMAN's Proposal, submit to the ENGINEER shop drawings for the specified equipment. Each submittal shall be clearly marked with the project name, dated, and accompanied by a letter of transmittal listing all items included in the submittal. After the ENGINEER has reviewed the shop drawings, satisfactory shop drawings will be accepted and dated and returned to the MATERIALMAN. If the shop drawings are not accepted, shop drawings will be returned to the MATERIALMAN with indications of the required corrections and changes made on one of the sets. Make such corrections and changes as indicated. Resubmit shop drawings until acceptance has been obtained. No corrections or changes indicated on shop drawings shall be considered as an extra work order.
- 3.6 Acceptance of shop drawings by the ENGINEER will be general only, and such acceptance will not relieve the MATERIALMAN of responsibility for accuracy of such shop drawings, proper fitting, coordination, construction of work, and furnishing materials required by the Specifications but not indicated on shop drawings. The MATERIALMAN shall submit in writing any requests for modifications to the Specifications. Shop drawings submitted to the ENGINEER do not constitute "in writing" unless it is brought to the attention of the ENGINEER that specific changes are being suggested. Acceptance of shop drawings shall not be construed as approving departures from the Specifications.

**TECHNICAL SPECIFICATIONS**

**BID ITEM #2**

**SPARE PARTS**

1.1 SPARE PARTS - BID ITEM NO. 2

A. Provide the following spare parts under Bid Item No. 2:

1. One (1) Trip Coil, 125 VDC.
2. One (1) Close Coil, 125 VDC.
3. One (1) Spring Charging Motor, 240 VAC.