

SECTION 16196 ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawing and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2 SUMMARY

- A. This Section includes:
 - 1. Nameplates.
 - 2. Tape labels.
 - 3. Wire and cable markers.
 - 4. Conduit markers.

1.3 SUBMITTALS

- A. Products furnished from listed manufacturers are pre-approved but still require submittal.
- B. Submit proposed substitutions for approval in accordance with General and Supplementary Conditions.
- C. Submit nameplate schedules showing all proposed engraving for approval prior to engraving. The Construction Manager reserves the right to change label names at any time prior to engraving.

1.4 SYSTEM IDENTIFICATION

- A. Identify electrical equipment at the Oak Ridge SNS Site according to the one-line diagram.
 - 1. For the Oak Ridge SNS Site, include the following:
 - a. switch identification,
 - b. location of line side disconnect,
 - c. voltage and number of phases,
 - d. equipment served,
 - e. equipment number, and
 - f. equipment location.
 - g. maximum voltage, equipment designation, source of supply, and equipment supplied; and
 - h. maximum voltage and source of supply may be omitted on branch circuits in MCCs, switchgears, panelboards, and unit substations when these are shown on the equipment.
- B. Identify safety switches, enclosed circuit breakers, motor starters, lighting panels, power panelboards, and other similar electrical equipment with laminated plastic nameplate having approximately 1/2-in.-tall letters.
- C. Identify light switches, receptacles, and other similar electrical devices with 1/2-in. black plastic adhesive tape having approximately 5/32-in.-tall letters.
- D. Example: A lighting switch on Circuit 15 from Panel B would be marked "120 V, 1 Ø, Circuit 15, LPB."

- E. Panelboard Directories: Indicate for each circuit the equipment served, floor and column location, and room number. Identify spare circuits.
- F. Identify conduit at the Oak Ridge SNS Site as indicated. Use equipment identified in Paragraph "1.2A" above to identify conduits.
1. For the Oak Ridge SNS site, include the following:
 - a. Conduits containing 480-V switchgear branch circuits. Identify conduits, which contain 480-V circuits supplying equipment not having a local disconnect or controller, at the equipment being served.
 - b. Conduits containing circuits higher than 480 V.
 - c. Underground conduits.
 2. Identify conduits at switchgear, entry and exit points of junction and pull boxes, on both sides of walls or floors which conduit penetrate, and at equipment in which conduits terminate.
 3. Identify underground conduit at both ends.
 4. Identify the Target Protection (TPS) conduit as "TPSI" for channel 1 and "TPS2" for channel 2 prior to installation of the cables. The conduit shall be labeled at intervals not to exceed 15 ft and at points of entry to and exit from enclosed areas. The TPS conduit shall be labeled inside the manways where the cables exit the ductbanks.
 5. The TPS cables shall be labeled in accordance with the Target Protection System Cable Schedule (F1, F2, G1, G2, etc.).
- G. Identify single-conductor power and control wiring originating from switchgear or MCCs.
1. Identify conductors in junction or pull boxes containing taps or splices and at terminations.
 2. Identify three-phase power feeder conductors by phase designations (e.g., PH-A, PH-B, and PH-C).
 3. Identify conductors with cloth markers or split sleeve or tubing-type markers.
 4. Cable labeling shall show cable number and source and destination points of cable.
- H. Identify branch circuit conductors originating from panelboards.
1. Identify conductors with vinyl, wrap-around, self-laminating, printable wire markers utilizing alphanumeric characters of 1/8 to 3/16 in. height, printed with black ink on white background.
 2. Place markers within 1 in. of where insulation has been removed for junctions or terminations.
 3. In addition to indicating the panelboard number and branch circuit number, identify conductors as follows:

a.	120-V, single-phase, two wire system	120V-1PH
b.	240/120-V, single-phase, three-wire systems	240/120V-1PH-A 240/120V-1PH-B
c.	208Y/120-V, three-phase, four-wire systems	208Y/120V-3PH-A 208Y/120V-3PH-B 208Y/120V-3PH-C
d.	240-V, Delta, three-phase, three-wire systems	240VD-3PH-A 240VD-3PH-B 240VD-3PH-C
e.	480Y/277V, three-phase, four-wire systems	480Y/277V-3PH-A 480Y/277V-3PH-B 480Y/277V-3PH-C
f.	480-V, Delta, three-phase, three-wire systems	480VD-3PH-A 480VD-3PH-B 480VD-3PH-C
 4. Cable labeling shall show cable number.

- I. Identify multiconductor cables installed in raceways at each termination with flag-type plastic ties. Cable labeling shall show cable number.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Nameplates: Engraved three-layer laminated plastic, white letters on black background.
- B. Tape Labels:
 1. 3/4-in. black plastic embossed adhesive tape with approximately 1/2-in.-tall white letters on black background, "DYMO" 5134-09.
 2. 1/2-in. black plastic embossed adhesive tape with approximately 5/32-in.-tall white letters on black background, "DYMO" 158-9.
- C. Wire and Cable Markers:
 1. Cloth Markers: W. H. Brady Company, "QUICK LABEL."
 2. Split Sleeve or Tubing Type: 3M Company, "SCOTCH CODE."
 3. Vinyl, Self-Laminating, Printable Markers: Thomas & Betts, Type WSL.
 4. Multiconductor Cable Markers: "PANDUIT" flag-type plastic ties.
- D. Conduit Markers: Aluminum or plastic tags with raised letters attached to conduit with sunlight resistant "TYRAPS."

PART 3 - EXECUTION

3.1 PREPARATION

- A. Degrease and clean surfaces to receive nameplates, tape labels, and cable markers.

3.2 INSTALLATION

- A. Install nameplates and tape labels parallel to equipment lines.
- B. Install tape labels to equipment front cover plates.
- C. Secure nameplates to equipment fronts using screws. Rivets are not acceptable.
- D. Secure nameplate to inside face of recessed troffers using adhesive.
- E. After applying tape label on equipment or device, brush a coat of clear lacquer over the tape label prior to field painting.
- F. Mask tape label during field painting with masking tape to prevent painting tape label.
- G. Using a typewriter or other mechanized means, fill out panelboard directories and place directories in directory card holder.
- H. Install conduit markers.
- I. Install wire and cable markers.

END OF SECTION 16196