

HIGH-VOLTAGE TRANSMISSION SYSTEM
BRANCH CIRCUITS AND TAPS
SECTION 331(h)

Section 331(h) of the Bituminous Coal Mine Laws of Pennsylvania requires that taps or branch circuits from the high-voltage feeder will be made through circuit breakers or suitable load break switches. For the purpose of interpretation and compliance with Section 331(h) and with Section 313(h), the following definitions will be used:

Branch Circuit

A branch circuit is a sub-portion of the high-voltage system, serving one or more loads. The branch circuit begins at the junction or splitting of the high-voltage system. The junction consists of three distinct elements;

1. Input feeder, which delivers power from the source.
2. Output feeder, which may extend the feeder to other parts of the high-voltage system.
3. The branch circuit.

The output feeder is not considered as a branch circuit and is not required to have electrical protection at the junction, but receives electrical protection either at the source substation or at some place between the source substation and the junction. The branch circuit is required to have protection at the junction.

Tap

A tap supplies power to the high-voltage loads located entirely within the enclosure where the connection is made.

Where no splitting of the feeder cable occurs, neither a tap nor branch is created.

Suitable Load Break Switch

A suitable load break switch, which may be used in lieu of a circuit breaker, is defined as a gang operated switch with a voltage rating not less than the system voltage, capable of interrupting a current equal to its continuous full load rating, and to be used in conjunction with fuses to provide overload and short circuit protection for the load being served.

Drawings 8-10 attached hereto are intended to illustrate these specifications.

POLICY FOR ENFORCEMENT AND COMPLIANCE
WITH SECTION 331(h)

- 1) Circuit breakers shall be used to provide electrical protection of a branch circuit. Such circuit breakers will be equipped with relays to provide instantaneous and inverse time limit phase overcurrent, undervoltage, and ground fault.
- 2) Since a branch circuit extends outside of the enclosure where the junction is made, the circuit breaker will be equipped with a ground continuity check circuit.
- 3) Circuit breakers may be used to provide electrical protection of a tap. Suitable load break switches may, at the mine operator's option, be used to protect taps if all of the following conditions are met.
 - a. Barriers will be installed in the enclosure separating the high-voltage load and the load break switch. Such barriers will be permanently installed or interlocked with the source circuit pilot to prevent access to the load break switch while energized.
 - b. The load break switch will be used in conjunction with fuses on the load side, adequate for protection of the load being served.
 - c. The load break switch will include an electrical interlock to open the pilot wire of the source circuit and trip the outby circuit breaker prior to the opening of the main contacts of the load break switch or interlocked to remove the load by opening the transformer secondary main breaker or by operating a primary high-voltage contactor.
 - d. The high-voltage system will be configured such that each working section of a mine will be served by a branch circuit from the main feeder with circuit breaker protection. The working section branch circuit may supply more than one load center if multiple load centers are necessary for the operation of the working section; such as section belt load centers, pump and auxiliary power centers, and face equipment power centers.
 - e. In the case of a mine with only one working section, the outside substation circuit breaker may provide all required high-voltage electrical protection for the high-voltage cable and the single power center. However, when a second unit of high-voltage equipment is connected to the transmission system, a high-voltage circuit breaker must also be installed in the mine.

EXHIBIT II
MARCH 19, 1999

- 4) Undervoltage and ground fault relays will not be required on load break switches used in lieu of circuit breakers for tap circuits.

- 5) Control transformers and potential transformers used for control and metering of circuit breakers and suitable load break switches are not required to have tap circuit protection, but must have adequate fuse or circuit breaker protection and be rated not more than 25KVA.

Exhibit I -- High Voltage Transmission System Branch Circuits and Taps Section 331(h) 3-19-99

Exhibit II -- Policy for Enforcement and Compliance With Section 331(h) 3-19-99

Drawing -- Taps and Branches page 8 of 10 3-19-99

Drawing -- Typical Tap of the High-Voltage Feeder page 9 of 10 3-19-99

Drawing -- Typical Mine Power Distribution System page 10 of 10 3-19-99

REVIEWED, MODIFIED, AND APPROVED BY:				
Name				
Organization				
Date				