

**§ 77.304 Explosion release vents.**

Drying chambers, dry-dust collectors, ductwork connecting dryers to dust collectors, and ductwork between dust collectors and discharge stacks shall be protected with explosion release vents which open directly to the outside atmosphere, and all such vents shall be:

- (a) Hinged to prevent dislodgment;
- (b) Designed and constructed to permit checking and testing by manual operation; and
- (c) Equal in size to the cross-sectional area of the collector vortex finder when used to vent dry dust collectors.

**§ 77.305 Access to drying chambers, hot gas inlet chambers and ductwork; installation and maintenance.**

Drying chambers, hot gas inlet chambers and all ductwork in which coal dust may accumulate shall be equipped with tight sealing access doors which shall remain latched during dryer operation to prevent the emission of coal dust and the loss of fluidizing air.

**§ 77.306 Fire protection.**

Based on the need for fire protection measures in connection with the particular design of the thermal dryer, an authorized representative of the Secretary may require any of the following measures to be employed:

- (a) Water sprays automatically actuated by rises in temperature to prevent fire, installed inside the thermal dryer systems, and such sprays shall be designed to provide for manual operation in the event of power failure.
- (b) Fog nozzles, or other no less effective means, installed inside the thermal dryer systems to provide additional moisture or an artificial drying load within the drying system when the system is being started or shut-down.
- (c) The water system of each thermal dryer shall be interconnected to a supply of compressed air which permits constant or frequent purging of all water sprays and fog nozzles or other no less effective means of purging shall be provided.

**§ 77.307 Thermal dryers; location and installation; general.**

(a) Thermal dryer systems erected or installed at any coal mine after June 30, 1971 shall be located at least 100 feet from any underground coal mine opening, and 100 feet from any surface installation where the heat, sparks, flames, or coal dust from the system might cause a fire or explosion.

(b) Thermal dryer systems erected or installed after June 30, 1971 may be covered by roofs, however, such systems shall not be otherwise enclosed unless necessary to protect the health and safety of persons employed at the mine. Where such systems are enclosed, they shall be located in separate fireproof structures of heavy construction with explosion pressure release devices (such as hinged wall panels, window sashes, or louvers); which provide at least 1 square foot of area for each 80 cubic feet of space volume and which are distributed as uniformly as possible throughout the structure.

**§ 77.308 Structures housing other facilities; use of partitions.**

Thermal dryer systems installed after June 30, 1971 in any structure which also houses a tippie, cleaning plant, or other operating facility shall be separated from all other working areas of such structure by a substantial partition capable of providing greater resistance to explosion pressures than the exterior wall or walls of the structure. The partition shall also include substantial, self-closing fire doors at all entrances to the areas adjoining the dryer system.

**§ 77.309 Visual check of system equipment.**

Frequent visual checks shall be made by the operator of the thermal dryer system control station, or by some other competent person, of the bypass dampers, air-tempering louvers, discharge mechanism, and other dryer system equipment.

**§ 77.309-1 Control stations; location.**

Thermal dryer system control stations constructed after June 30, 1971, shall be installed at a location which will give to the operator of the control

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station the widest field of visibility of the system and equipment.

**§ 77.310 Control panels.**

(a) All thermal dryer system control panels constructed after June 30, 1971 shall be located in an area which is relatively free of moisture and dust and shall be installed in such a manner as to minimize vibration.

(b) A schematic diagram containing legends which show the location of each thermocouple, pressure tap, or other control or gaging instrument in the drying system shall be posted on or near the control panel of each thermal drying system.

(c) Each instrument on the control panel shall be identified by a nameplate or equivalent marking.

(d) A plan to control the operation of each thermal dryer system shall be posted at or near the control panel showing a sequence of startup, normal shutdown, and emergency shutdown procedures.

**§ 77.311 Alarm devices.**

Thermal dryer systems shall be equipped with both audible and visual alarm devices which are set to operate when safe dryer temperatures are exceeded.

**§ 77.312 Fail safe monitoring systems.**

Thermal dryer systems and controls shall be protected by a fail safe monitoring system which will safely shut down the system and any related equipment upon failure of any component in the dryer system.

**§ 77.313 Wet-coal feedbins; low-level indicators.**

Wet-coal bins feeding thermal drying systems shall be equipped with both audible and visual low-coal-level indicators.

**§ 77.314 Automatic temperature control instruments.**

(a) Automatic temperature control instruments for thermal dryer system shall be of the recording type.

(b) Automatic temperature control instruments shall be locked or sealed to prevent tampering or unauthorized adjustment. These instruments shall

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not be set above the maximum allowable operating temperature.

(c) All dryer control instruments shall be inspected and calibrated at least once every 3 months and a record or certificate of accuracy, signed by a trained employee or by a servicing agent, shall be kept at the plant.

**§ 77.315 Thermal dryers; examination and inspection.**

Thermal dryer systems shall be examined for fires and coal-dust accumulations if the dryers are not restarted promptly after a shutdown.

**Subpart E—Safeguards for Mechanical Equipment**

**§ 77.400 Mechanical equipment guards.**

(a) Gears; sprockets; chains; drive, head, tail, and takeup pulleys; flywheels; couplings; shafts; sawblades; fan inlets; and similar exposed moving machine parts which may be contacted by persons, and which may cause injury to persons shall be guarded.

(b) Overhead belts shall be guarded if the whipping action from a broken line would be hazardous to persons below.

(c) Guards at conveyor-drive, conveyor-head, and conveyor-tail pulleys shall extend a distance sufficient to prevent a person from reaching behind the guard and becoming caught between the belt and the pulley.

(d) Except when testing the machinery, guards shall be securely in place while machinery is being operated.

**§ 77.401 Stationary grinding machines; protective devices.**

(a) Stationary grinding machines other than special bit grinders shall be equipped with:

(1) Peripheral hoods (less than 90° throat openings) capable of withstanding the force of a bursting wheel.

(2) Adjustable tool rests set as close as practical to the wheel.

(3) Safety washers.

(b) Grinding wheels shall be operated within the specifications of the manufacturer of the wheel.

(c) Face shields or goggles, in good condition, shall be worn when operating a grinding wheel.