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LEGISLATION

LEGISLATIVE REGULATION OF GOB PILES

The disposal of wastes is one of the major cost problems of industry. In the coal industry, the unmarketable materials consist of earth, slate, shale, "bug dust", iron pyrites, and oil wastes from machinery. Collectively they are called "gob".¹ The usual low-cost-method of disposal is to dump these wastes into a "gob-pile". Industrially, this is a successful disposition. Socially, gob-piles are often annoying and frequently injurious. Gob is unsightly. It is easily ignited. Iron pyrites and oil wastes oxidize rapidly.² The "bug dust" is highly inflammable.³ Thus

¹ The definition of "gob" is "any pile of loose waste in the mine, of coal and other materials that are not marketable." Glossary of Mining and Mineral Industry, Department of Interior.

² "The effect of moisture and the effect of sulphur on the spontaneous heating of coal are questions on which there has been a great deal of discussion and much difference of opinion. Very little experimental evidence has been brought to bear on either of the questions, and certainly neither is yet settled."

"Sulphur has been shown by the bureau's investigations to have only a minor effect in most instances." Deterioration and Spontaneous Heating of Coal in Storage, Technical Paper 16, U. S. Bureau of Mines (1912), p. 10.

"It is a debated question how far the sulphur content of the coal (visible as iron pyrite) is responsible for spontaneous fires. Formerly it was believed to be the chief factor; now it is generally thought to be only an auxiliary factor. In either case it is safer to load the 'sulphur balls' into cars and send them out of the mine. If they are abundant they may be sold to manufacturers of sulphuric acid, as is done by certain mines in Illinois, Ohio, and other states, thus partly compensating for the cost of handling." Mine Fires, Technical Paper 24, U. S. Bureau of Mines (1912), p. 20.

"Oxidation of the pyrite in the coal also produces heat and assists in breaking up the lumps and thus increases the amount of fine coal in the pile. Rise in temperature, either from external or internal causes promotes the oxidation of pyrite and thus increases the liability of the coal to spontaneous combustion." Safe Storage of Coal, Technical Paper 235, U. S. Bureau of Mines (1920), p. 5.

"Since coal is a rather poor conductor of heat the major part of the heat generated within the pile will be retained, and from the calculation of the heat generated by the pyritic oxidation, it may seem that a sufficient quantity of heat was liberated to bring the coal up to this temperature of 135 at which active oxidation of the carbonaceous materials begins." "Since the above experiments show that the oxidation of the pyrite is practically constant, that is, about one-fifth of the total pyrite present, then it follows that coals with increasing pyrite contents will have a corresponding increase in pyritic oxidation and a correspondingly greater amount of heat will be liberated It seems, therefore, that the presence of pyrite is a much more important factor in the spontaneous ignition of coal than has heretofore been ascribed to it." Spontaneous Combustion of Coal, University of Illinois Engineering Experiment Station, Bulletin 46 (1910), p. 34; Gas Analysis as an Aid in Fighting Fires, Technical Paper 13, U. S. Bureau of Mines (1912); Methods of Determining the Sulphur Content of Fuels, Technical Paper 26, U. S. Bureau of Mines (1912); Spontaneous Heating of Stored Coal, Technical Paper 172, U. S. Bureau of Mines (1917); Fires in Coal Piles, A. J. Hoskin,

many gob piles burn almost continuously.⁴ The resulting smoke, sulphur dioxide, corrosive and irritating gases, cause discomfort to persons, and in cases of extreme concentration may even injure property.⁵

There is no industrial advantage in the prevention of gob fires as there is in the case of stored coal,⁶ and the present legal responsibility⁷ does not sufficiently encourage operators to prevent

Power, (New York) Vol. 69, no. 8, Feb. 19, 1929, p. 314; Spontaneous Combustion of Stored Coal, A. T. Ward, Blast Furnace and Steel Plants (Pittsburgh) Vol. 17, no. 2, Feb. 1929, pp. 298-301; Theoretical and Practical Considerations concerning Spontaneous Firing of Coal during Storage, A. J. Hoskins, Pit and Quarry, (Chicago), Vol. 18, no. 7, July 3, 1929, pp. 61-63; The Oxidation of Pyrites as a Factor in the Spontaneous Combustion of Coal, S. H. Li and S. W. Parr, Fuel (London) Vol. 8, no. 1, Jan. 1929, pp. 9-15; Coal Storage, H. D. Fisher, Combustion (New York), Vol. 6, no. 3, Mar. 1922, pp. 132-133, 143.

⁴ See *supra* n. 2; *Rinehart v. Stanley Coal Co.*, 112 W. Va. 82, 163 S. E. 766 (1932); *Coal Dust Explosions in Mines*, Technical Paper 448, U. S. Bureau of Mines (1929); *W. VA. REV. CODE* (1931), c. 22, art. 2, § 11.

⁵ In addition, sparks from locomotives, burning matches, cigarettes, and forest fires are a constant menace.

⁶ *Rinehart v. Stanley Coal Co.*, *supra* n. 3. "We conclude, first, that the evidence supports the finding by the jury that plaintiff's property was damaged by noxious fumes and dust from the refuse pile to the amount of the verdict." "Such injuries include damage to vegetation, paint and metal surfaces. "It is generally believed that sulphuric acid, water, sulphur dioxide, and small quantities of sulphur trioxide will not affect iron or steel appreciably so long as they are in the gaseous state, but any condensation on equipment would cause corrosion in some degree." *The Sulphur Problem in Burning Coal*, Technical Paper 436, U. S. Bureau of Mines (1928).

⁷ See *supra* n. 2.

⁸ Courts of equity enjoin the use of property which causes injury to another, even though such use is for a lawful end. *McGregor et al. v. Camden et al.*, 47 W. Va. 193, 34 S. E. 936 (1899) (enjoined unnecessary noises in operation of oil well). This on the theory of the common-law nuisance. Industrial enterprises which cause smoke, noise, "nuisances", or the pollution of streams have been enjoined. *Face v. Cherry*, 117 Va. 41, 84 S. E. 10 (1915) (smoke from a brick kiln); *Georgia v. Tennessee Copper Co.*, 206 U. S. 230, 27 S. Ct. 618 (1906), 237 U. S. 474, 35 S. Ct. 631 (1916) (smelter fumes); *City of Selma v. Jones*, 202 Ala. 82, 79 So. 476 (1908) (city dump); *Kroecker v. Camden Coal Co.*, 82 N. J. Eq. 373, 88 Atl. 955 (1913) (coke oven fumes); *Stoneburger v. O-Gas Co. Sales Corp.*, 135 Misc. 216, 237 N. Y. Supp. 339 (1929) (oil tank odors); *Holman v. Mineral Point Zinc Co.*, 135 Wis. 132, 115 N. W. 327 (1908) (fumes from sulphuric acid plant); *Snyder v. Philadelphia Co.*, 54 W. Va. 149, 46 S. E. 366 (1903) (noise from a gas well); *Chambers v. Cramer*, 49 W. Va. 395, 38 S. E. 691, 54 L. R. A. 545 (1901); *McGregor v. Camden*, *supra* n. 7; *Powell v. Bentley & Gerwig Furniture Co.*, 34 W. Va. 804, 12 S. E. 1085 (1891); *Whalen v. Union Bag & Paper Co.*, 208 N. Y. 1, 101 N. E. 805 (1913). But such relief is granted only when the injury is occurring.

Actions at law for damages are permitted to lie for injuries caused by smoke, but this does not make the injured person whole. *Chicago-Virden Coal Co. v. Wilson*, 67 Ill. App. 443 (1896) (smoke from burning slack coal pile); *United Verde Extension Mining Co. v. Ralston*, 37 Ariz. 554, 296 Pac. 262 (1931) (smelter fumes); *Czarnecki v. Bolden-Darnell Coal Co.*, 91 Ark. 58, 120 S. W. 376 (1909) (burning gob-piles fumes); *Rinehart v. Stanley Coal Co.*, *supra* n. 3. Both the legal and equitable remedies are available only to

gob fires. Thus, if it is socially desirable to prevent these fires, self interest or legal liability cannot be depended upon to provide the deterrent.⁸ Legislative and administrative control affords the best and most permanent solution. But a thorough and scientific study of the problem must precede legislation and regulation. Otherwise useless and at the same time burdensome regulations may be imposed on the industry.⁹ The obligation of legislation is to protect the public from injuries to its aesthetic senses,¹⁰ adjacent property owners in their health and property,¹¹ and finally the industry from unnecessary and unreasonable burdens.¹²

At this time it appears that it would be financially impossible for the industry to eliminate gob piles. Enough will be accom-

those persons living or owning property near the source of inconvenience. Obviously the operator will not object and the miner is under an economic compulsion to remain silent. This leaves the greater part of the public without a remedy.

The West Virginia Supreme Court of Appeals is in accord with a majority of jurisdictions that the negligent use of property in the conduct of a lawful business renders the owner liable in damages for the ensuing injury. But our court has intimated that the maintenance of a "gob pile" is not negligence *per se*. *Rinehart v. Stanley Coal Co.*, *supra* n. 3. This leaves the injured party without redress when he cannot prove the cause of the fire, or when it results from non-negligent conduct.

⁸ Some persons suggest that there is an economic advantage in permitting gob-piles to burn. There is some market for the burned gob (red dog); but more likely the burning results not from a desire to make a profit but rather from the desire to save the cost of prevention.

⁹ A Colorado statute (Rev. Stat., 1908, § 658) requires that stored slack coal be fenced from livestock. A similar Florida statute (Comp. Laws, 1927, § 7362) applies to phosphorus wastes. These regulations consider but a single feature of the problem. Alone, they are of little significance.

¹⁰ For judicial and juridical consideration of the problem, see *Welch v. Swasey*, 214 U. S. 91, 108, 29 S. Ct. 567 (1909); *St. Louis Poster Advg. Co. v. St. Louis*, 249 U. S. 269, 274, 39 S. Ct. 274 (1919); *General Outdoor Advertising Co. v. City of Indianapolis*, 202 Ind. 85, 172 N. E. 309 (1930), comments in (1931) 10 ORE. L. REV. 265, (1931) 16 IOWA L. REV. 422, (1930) 79 U. OF PA. L. REV. 88; *Perlmutter v. Greene*, 259 N. Y. 327, 182 N. E. 5 (1932), comments in (1932) 12 B. U. L. REV. 682, (1933) 19 VA. L. REV. 65, (1933) 27 ILL. L. REV. 685-6; *Attorney-General v. Williams*, 174 Mass. 476, 479, 55 N. E. 77, 78, 47 L. R. A. 314 (1899); *State v. Houghton*, 144 Minn. 13, 20, 176 N. W. 159, 162 (1920); *St. Louis Gunning Advertising Co. v. St. Louis*, 235 Mo. 99, 202, 137 S. W. 929, 961, 964, 967 (1911); *State v. Harper*, 182 Wis. 148, 196 N. W. 451, 455 (1923); *Goodrich, Billboard Regulation and the Aesthetic Viewpoint with Reference to California Highways* (1929) 17 CAL. L. REV. 120, 214; Note (1923) 29 W. VA. L. Q. 195; Note (1925) 13 CAL. L. REV. (1925).

¹¹ *Supra* n. 7.

¹² *Cf. Miller v. Schoene*, 276 U. S. 272, 48 S. Ct. 246 (1928) where the preservation of the apple industry (one of the dominant industries of the state) was considered of sufficient social interest to justify the destruction of infectious cedar trees that were menacing the apple orchards. But great economic worth will not alone exempt an industry from regulation. See, *Hada-check v. Los Angeles*, 239 U. S. 394, 36 S. Ct. 143 (1915); *Northwestern Laundry v. Des Moines*, 239 U. S. 486, 36 S. Ct. 206 (1916); *Sligh v. Kirkwood*, 237 U. S. 52, 35 S. Ct. 501 (1915).

plished for the present if gob fires can be prevented. Prevention is important, for a fire once started in a large pile can only be extinguished by the expensive process of digging into the center or bottom of the pile and extinguishing the fire with water.¹³ Reduction of the fire hazard may be accomplished in various ways. The wastes may be stored in abandoned parts of the mine;¹⁴ deposited in water;¹⁵ spread over a large enough area to permit the heat to escape;¹⁶ or by the separation of the waste materials.¹⁷

In some fields, careful planning will permit the marketing of products usually condemned to the gob pile. Thus in Ohio and Illinois, where sulphur compounds occur in large quantities, they are sold for the manufacture of sulphuric acid.¹⁸ In some sections, slack coal finds a ready market when manufactured into briquets.¹⁹ "Red dog", the residue from burned gob, has a small value in some localities as a road building material.²⁰ Utilization of these products may aid in a small way in reducing the cost of waste disposal. But for the most part, the operator cannot expect any economic gain from gob.

The mine operator must anticipate that in the disposal of gob he will eventually be required to comply with a standard of care which will afford protection to persons and property and to the enlarging demands of society. Under existing conditions, and considering the expenses involved in the methods of control,²¹ the

¹³ Safe Storage of Coal, *supra* n. 2, at p. 5.

¹⁴ Belgian mine operators successfully store washery refuse in abandoned mine workings. "Stowing Mine Workings with Washery Refuse", 135 Colliery Guardian (London) 1114 (1927).

¹⁵ "Safe Storage of Coal", *supra* n. 2, at p. 7. Cf. W. Va. Acts 1933, 1st Extra Session, c. 6.

¹⁶ See *supra* n. 2.

¹⁷ The "gob" will not usually ignite if the sulphur compounds and the "bug dust" are separated. See *Rinehart v. Stanley Coal Co.*, *supra* n. 3 at 84, "The dump had existed since 1922 or longer, but it did not become ignited, according to the evidence for the defendant, until a few months after it began depositing the 'bug dust'. Defendant, knowing the highly inflammable quality of the 'bug dust', was clearly negligent in depositing it with the other mining refuse in a huge dump covering several acres, as the machine cuttings, not sold as coal could have been, and part of it was, deposited elsewhere."

¹⁸ Mine Fires, *supra* n. 2.

¹⁹ Briquetting is the binding together of fine or black coal with tar or a similar substance, and moulding it into "briquets", for use as fuel. *Institution of Mining Engineers, Transactions* (London) Vol. 79, no. 6, Sept. 1930, pp. 446-462; *Colliery Guardian* (London) Vol. 141, no. 3629, July 18, 1930, pp. 203-206; *Iron and Coals Trade Review*, (London) Vol. 121, no. 3255, July 18, 1930, pp. 82-83.

²⁰ See *supra* n. 8.

²¹ If the coal operators in West Virginia were compelled to expend large sums of money for machinery to be used in the disposal of wastes, mines in other states under no similar restrictions would have a great economic ad-

most appropriate and effective means of controlling gob fires is the separation of the sulphur compounds from the other wastes, the separation of the "bug dust", and the elimination, as far as possible, of the oil wastes.²² This method would greatly reduce the fire hazard.²³ Reduction in the size of the piles would also aid in fire prevention.²⁴

Legislation to effectuate these ends is necessary, but it should be preceded by a careful study of waste materials and the various methods for their disposal. Inasmuch as the economic importance of the coal industry to the state cannot be jeopardized by gob pile regulation,²⁵ the regulation should provide for an easy and inexpensive method of disposal. Most important in drafting a gob pile statute is the formation of a legislative standard that will facilitate easy administration. If, for example, it can be determined that when under "ordinary" conditions, the sulphur content passes a certain per cent.²⁶ the fire hazard becomes disproportionately large, then the department of mines should be able to enforce without further determination the legal sanctions of penalty and injunction.²⁷ In addition the department should have the power to restrain dumping sulphur wastes with other materials wherever it is determined after investigation that some "unusual" hazard makes more stringent regulation necessary.

Legislation providing for gob pile regulation becomes an ever increasing necessity as the state expands its social and economic horizon. Scientific, economic, and legal research is necessary for proper gob pile regulation. There should be no delay in beginning this research.

—PAUL D. FARR.

vantage over the West Virginia mines. However, in the future, when all are forced to resort to the less clean seam of coal, there will be great need for uniform legislation on the subject.

²² Since some parts of coal cutting machines are by necessity in a very close proximity to the fine coal produced by the cutting process, it would be almost impossible to segregate all of the oil wastes.

²³ *Supra* n. 3.

²⁴ The smaller the pile, the greater chance for heat to escape, and the easier it is to move when it becomes heated. *Safe Storage of Coal, supra* n. 2, at p. 9.

²⁵ *Miller v. Schoene, supra* n. 12.

²⁶ In case the iron pyrites occur only in large pieces, separation by hand may be practicable. But where they are found in small particles, it may be necessary to effect the separation by a mechanical process, such as pulverizing. It might then be necessary to separate the pyrites by flotation, but if the whole pulverized mass is stored so that oxygen cannot reach the inside of it, oxidation is almost impossible. Surface fires can be easily controlled with water.

²⁷ W. VA. REV. CODE (1931) c. 22.